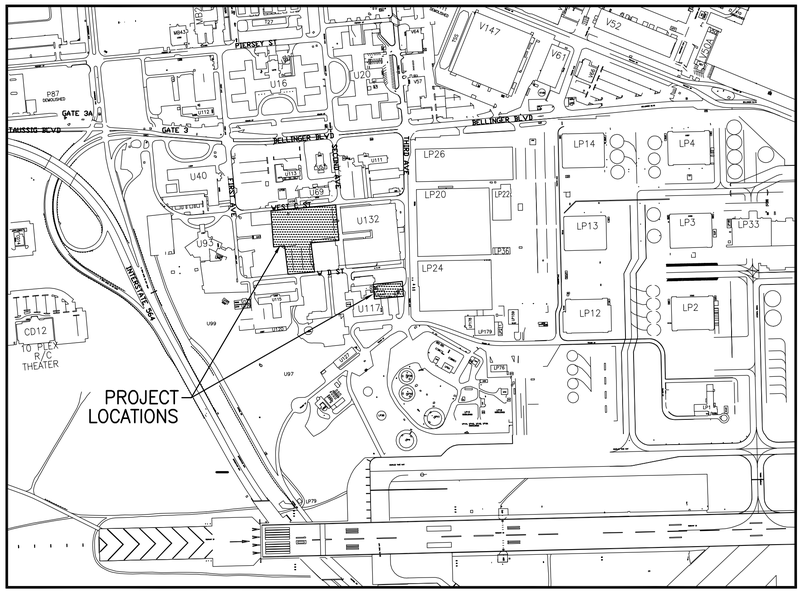
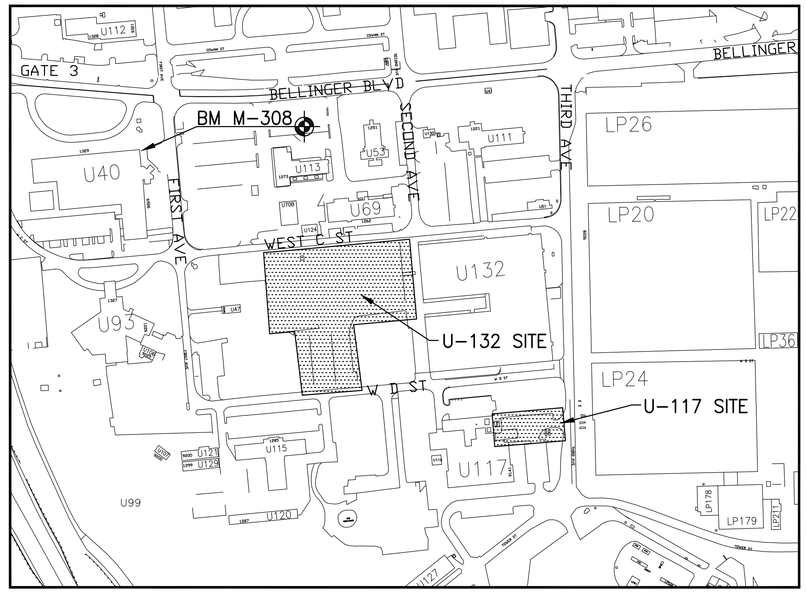
REPAIR PARKING LOT
WEST OF BUILDING U-132

NORFOLK NAVAL STATION NORFOLK, VA



LOCATION MAP

NOT TO SCALE



SITE MAP

NOT TO SCALE

INDEX OF DRAWINGS

SHEET NO.	NAVFAC NO.	SHEET TITLE
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E-501	4503349	SPECIFICATIONS

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

APPROVED
VIA FACSIMILE
LCDR BARTOE
ACTIVITY – SATISFACTORY TO
24 NOV 2003
DATE

APPROVED
FOR EFD FOR COMMANDER NAVFAC
11/17/03
DATE

A/E	EFD
DESIGN	JMF
DRAWN	JMF
REVIEW	TAR
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	JSG
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA
NAVAL STATION
ATLANTIC DIVISION
NORFOLK NAVAL STATION
NORFOLK, VA
REPAIR PARKING LOT
WEST OF BUILDING U-132
TITLE SHEET

CODE ID. NO. 80091 SIZE D
SCALE: NONE
EFD NO.
STA. PROJ. NO. R308
SPEC. NO.
CONSTR. CONTR. NO.
N62470-03-C-3040
NAVFAC DRAWING NO.
4503333
SHEET 1 OF 17
G-001

DRAWFORM REVISION SEPT 2001

DESCRIPTION | DATE | APPR | STA.

FILENAME: 033A0480G-001.DWG, UPDATED ON 12/16/03 AT 08:03, XREFS: 033A0480PROJ-INFO

LEGEND

EXISTING		NEW
	BUILDING	
	BITUMINOUS CONCRETE	
	CONCRETE	
	NO PARKING STRIPING	
	CONCRETE CURB	
	DEMOLITION	OR
+14.08	SPOT ELEVATION	12.00 (TOP OF CURB) 12.00 (TOP OF PVMT.)
	MATCH EXISTING GRADE	MEG
	TREE	
E.D.	STORM SEWER	
E.S. DI	DROP INLET	
E.S. MH	STORM MANHOLE	
CO	CLEANOUT	
E. SAN	SANITARY SEWER	
E. SAN. MH (S)	SANITARY SEWER MANHOLE	
EW	WATER	
ESTM	OVERHEAD STEAM	
FH	FIRE HYDRANT	
E. EMH	ELECTRIC MANHOLE	
E. TEL MH	TELEPHONE MANHOLE	
E. LP	LIGHT POLE	
	POWER POLE	
	GUY WIRE	
	GUARD POST / PIPE BOLLARD	
TBM	TEMPORARY BENCH MARK	
WV	WATER VALVE W/VALVE BOX	
	SIGN	
	WHEEL STOPS	
IP	INLET PROTECTION	
BP	BASIN PROTECTION	
	SILT FENCE	
	GRASS	
	OVERHEAD STEAM SUPPORT	

ABBREVIATIONS:

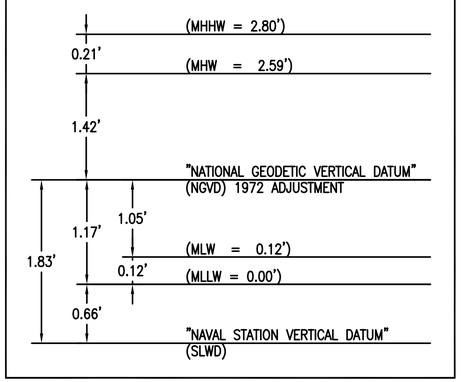
APPROX.	APPROXIMATE
BIT.	BITUMINOUS
BLDG.	BUILDING
CATV	CABLE TELEVISION
CB	CATCH BASIN
CI	CURB INLET
C.J.	CONTRACTION JOINT
CLR.	CLEAR
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC.	CONCRETE
DI	DROP INLET
D.I.	DUCTILE IRON
DIA., ø	DIAMETER
E.	EXISTING
EA.	EACH
E.J.	EXPANSION JOINT
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EXIST.	EXISTING
F.F.E.	FINISH FLOOR ELEVATION
F.H.	FIRE HYDRANT
H.C.	HANDICAP
INV.	INVERT ELEVATION
L.P.	LIGHT POLE
MAX.	MAXIMUM
M.E.G.	MATCH EXISTING GRADE
M.H.	MANHOLE
MIN.	MINIMUM
N.I.C.	NOT IN CONTRACT
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OHD	OVERHEAD
PCC	PORTLAND CEMENT CONCRETE
P.E.J.	PREMOULDED EXPANSION JOINT
PP	POWER POLE
PVC	POLYVINYL CHLORIDE
PVMT.	PAVEMENT
R	RADIUS
RD	ROOF DRAIN
RCP	REINFORCED CONCRETE PIPE
SQ.	SQUARE
SAN.	SANITARY SEWER
S. OR SD	STORM DRAIN
S. MH	STORMWATER MANHOLE
STM	STEAM
S/W	SIDEWALK
T.B.M.	TEMPORARY BENCH MARK
TEL.	TELEPHONE
TYP.	TYPICAL
T&G	TONGUE AND GROOVE
UG OR U	UNDERGROUND
WV	WATER VALVE
W.W.F.	WELDED WIRE FABRIC

GENERAL NOTES:

1. TOPOGRAPHIC SURVEY WAS PERFORMED BY THE ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND, CODE CI45, IN JULY 2003.
2. THIS SURVEY DOES NOT GUARANTEE THE EXISTENCE/NON-EXISTENCE, SIZE, TYPE OR LOCATION OF UNDERGROUND UTILITIES.
3. UNLESS OTHERWISE INDICATED, ALL EXISTING STRUCTURES AND FACILITIES SHALL REMAIN.
4. ALL DIMENSIONS ARE TO FACE OF BUILDING AND FACE OF CURB UNLESS OTHERWISE INDICATED.
5. PROVIDE TOPSOIL, SEED AND FERTILIZER TO ALL DISTURBED NON-PAVED AREAS WITHIN THE LIMITS OF CONSTRUCTION.
6. NO EARTHWORK SHALL BE PERFORMED UNTIL ALL SOIL EROSION DEVICES ARE IN-PLACE.
7. ALL GRADE TRANSITIONS BETWEEN NEW AND EXISTING SHALL BE SMOOTH AND GRADUAL WITH NO SHARP OR ABRUPT CHANGES.
8. COORDINATE THE WORK OF ALL TRADES – VERIFY ALL FIELD CONDITIONS, QUANTITIES AND DIMENSIONS PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER.
9. EXECUTE ALL WORK WITH CARE AS TO PROTECT FROM DAMAGING ADJACENT EXISTING FEATURES TO REMAIN. ANY SUCH DAMAGE SHALL BE REPAIRED OR REPLACED TO MATCH THE ORIGINAL CONDITION AS APPROVED BY THE CONTRACTING OFFICER AT NO ADDITIONAL COST TO THE GOVERNMENT.
10. FINISHED GRADE OF TOP SOIL (AFTER COMPACTION) SHALL BE 1/2" TO 1" (MAXIMUM) BELOW TOP OF ABUTTING PAVEMENTS, SIDEWALKS AND CURBING.
11. ELEVATIONS ARE BASED ON THE NORFOLK NAVAL STATION VERTICAL DATUM AS SHOWN BELOW. REFERENCE STATION BENCH MARK NO. M-308, ELEVATION 16.059, USC&GS BRASS DISK SET IN THE EAST FACE OF BUILDING U-40, 1.5 FEET SOUTH OF THE NORTHEAST CORNER.

DIAGRAM OF DATUM PLANE

NAVAL BASE; NORFOLK, VIRGINIA VERTICAL CONTROL



		APPR	
		DATE	
		DESCRIPTION	
		STM	

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

APPROVED

ACTIVITY – SATISFACTORY TO

DATE

APPROVED
FOR EFD FOR COMMANDER NAVFAC
11/17/03

DATE

A/E	EFD
DESIGN	JMF
DRAWN	JMF
REVIEW	TAR
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	JSC
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL STATION
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA

NORFOLK NAVAL STATION
NORFOLK, VA

REPAIR PARKING LOT
WEST OF BUILDING U-132

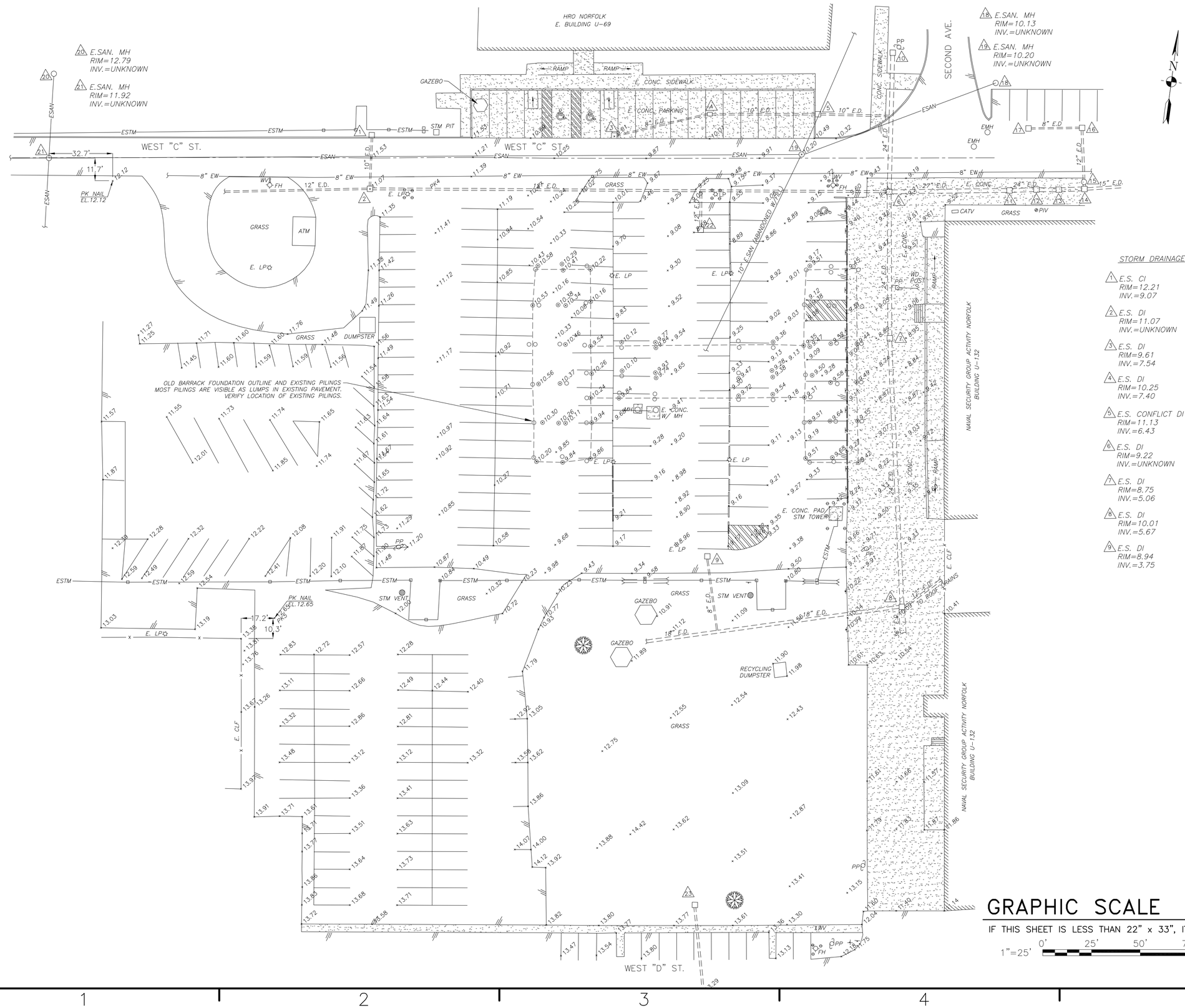
GENERAL NOTES, LEGEND AND ABBREVIATIONS

CODE ID. NO. 80091	SIZE D
SCALE: NONE	
EFD NO.	
STA. PROJ. NO. R308	
SPEC. NO.	
CONSTR. CONTR. NO. N62470-03-C-3040	
NAVFAC DRAWING NO. 4503334	
SHEET 2 OF 17	

C-001

DRAWFORM REVISION SEPT 2001

FILENAME: 033A0460C-001.DWG, UPDATED ON 12/15/03 AT 08:04, XREFS: 033A0460PROJ-INFO



STORM DRAINAGE STRUCTURES

1 E.S. CI
RIM=12.21
INV.=9.07

2 E.S. DI
RIM=11.07
INV.=UNKNOWN

3 E.S. DI
RIM=9.61
INV.=7.54

4 E.S. DI
RIM=10.25
INV.=7.40

5 E.S. CONFLICT DI
RIM=11.13
INV.=6.43

6 E.S. DI
RIM=9.22
INV.=UNKNOWN

7 E.S. DI
RIM=8.75
INV.=5.06

8 E.S. DI
RIM=10.01
INV.=5.67

9 E.S. DI
RIM=8.94
INV.=3.75

10 E.S. DI
RIM=10.80
INV.=5.84

11 E.S. DI
RIM=8.56
INV.=4.41

12 E.S. DI
RIM=8.25
INV.=4.36

13 E.S. DI
RIM=8.09
INV.=5.20

14 E.S. DI
RIM=7.98
INV.=4.65

15 E.S. MH
RIM=7.98
INV.=4.65

16 E.S. DI
RIM=8.59
INV.=5.36

17 E.S. DI
RIM=8.65
INV.=6.46

22 E.S. DI
RIM=8.48
INV.=5.68

23 E.S. DI
RIM=13.28
INV.=10.99

24 E.S. MH
RIM=13.29
INV.=UNKNOWN

GRAPHIC SCALE

IF THIS SHEET IS LESS THAN 22" x 33", IT IS A REDUCED SIZE DRAWING

1"=25' 0' 25' 50' 75' 100' 125'

DESIGNED & ENGINEERED BY:
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NAVAL FACILITIES ENGINEERING COMMAND

APPR | DATE | DESCRIPTION | STM

SEAL

APPROVED

ACTIVITY – SATISFACTORY TO

DATE

APPROVED
FOR EFD FOR COMMANDER NAVFAC
11/17/03

DATE

A/E	EFD
DESIGN	JMF
DRAWN	JMF
REVIEW	TAR
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	JSC
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL STATION
NORFOLK NAVAL STATION
NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NORFOLK, VIRGINIA
NORFOLK, VA

REPAIR PARKING LOT WEST OF BUILDING U-132

TOPOGRAPHIC SURVEY – U-132

CODE ID. NO. 80091	SIZE D
SCALE: 1"=25'	
EFD NO.	
STA. PROJ. NO. R308	
SPEC. NO.	
CONSTR. CONTR. NO. N62470-03-C-3040	
NAVFAC DRAWING NO. 4503335	
SHEET 3 OF 17	

C-101

DRAWFORM REVISION SEPT 2001

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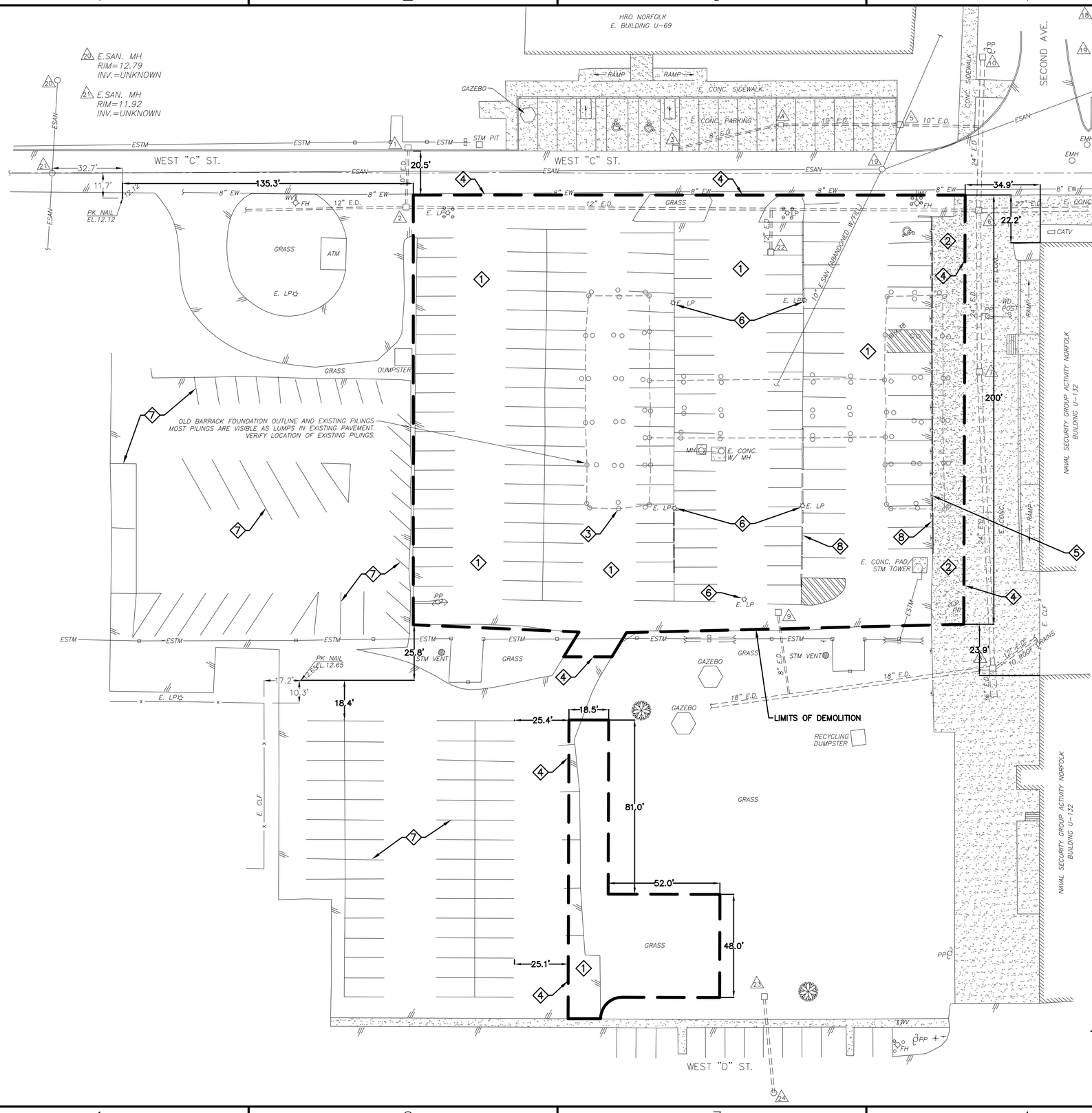


STORM DRAINAGE STRUCTURES

1. E.S. CI RIM=12.21 INV.=9.07
2. E.S. DI RIM=11.07 INV.=UNKNOWN
3. E.S. DI RIM=9.61 INV.=7.54
4. E.S. DI RIM=10.25 INV.=7.40
5. E.S. CONFLICT DI RIM=11.13 INV.=6.43
6. E.S. DI RIM=9.22 INV.=UNKNOWN
7. E.S. DI RIM=8.75 INV.=5.06
8. E.S. DI RIM=10.01 INV.=5.67
9. E.S. DI RIM=8.94 INV.=3.75
10. E.S. DI RIM=10.80 INV.=5.84
11. E.S. DI RIM=8.56 INV.=4.41
12. E.S. DI RIM=8.25 INV.=4.36
13. E.S. DI RIM=8.09 INV.=5.20
14. E.S. DI RIM=7.98 INV.=4.65
15. E.S. MH RIM=7.98 INV.=4.65
16. E.S. DI RIM=8.59 INV.=5.36
17. E.S. DI RIM=8.65 INV.=6.46
22. E.S. DI RIM=8.48 INV.=5.68
23. E.S. DI RIM=13.28 INV.=10.99
24. E.S. MH RIM=13.29 INV.=UNKNOWN
18. E.SAN. MH RIM=10.13 INV.=UNKNOWN
19. E.SAN. MH RIM=10.20 INV.=UNKNOWN
20. E.SAN. MH RIM=12.79 INV.=UNKNOWN
21. E.SAN. MH RIM=11.92 INV.=UNKNOWN

DEMOLITION KEY & NOTES

1. REMOVE APPROX. 5,620 SY. OF EXIST. 2" THICK BIT. CONC.
2. REMOVE APPROX. 323 SY. OF EXIST. 6" THICK PCC.
3. REMOVE APPROX. (100) EXIST. CONCRETE PILING CAPS. (SEE PILING DEMO DETAIL, SHEET C-501).
4. SAWCUT ALL BIT. CONC. AND PCC EDGES FOR REMOVAL.
5. REMOVE EXIST. RESERVED PARKING SIGNS AND DISCARD POSTS. SAVE RESERVED SIGNS FOR RE-USE WITH NEW POST DURING CONSTRUCTION.
6. REMOVE EXIST. LIGHT POLES.
7. REMOVE EXIST. WHITE PARKING STRIPING WITH BLACK MARKING PAINT.
8. REMOVE EXIST. CONC. WHEEL STOPS.
9. ALL UTILITY STRUCTURES, OTHER THAN THE LIGHT POLES INDICATED, WILL REMAIN AS EXISTING.
10. REFER TO SHEET C-001 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.

GRAPHIC SCALE

IF THIS SHEET IS LESS THAN 22" x 33", IT IS A REDUCED SIZE DRAWING

1"=25' 0' 25' 50' 75' 100' 125'

APPR	DATE	DESCRIPTION	STM

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

APPROVED
ACTIVITY – SATISFACTORY TO
DATE
APPROVED
FOR EFD FOR COMMANDER NAVFAC
4/11/03
DATE

A/E	EFD
DESIGN	JMF
DRAWN	JMF
REVIEW	TAR
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	JSC
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION NORFOLK, VIRGINIA
NORFOLK NAVAL STATION NORFOLK, VA

REPAIR PARKING LOT WEST OF BUILDING U-132

DEMOLITION PLAN - U-132

CODE ID. NO. 80091	SIZE D
SCALE: 1"=25'	
EFD NO.	
STA. PROJ. NO. R308	
SPEC. NO.	
CONSTR. CONTR. NO. N62470-03-C-3040	
NAVFAC DRAWING NO. 4503336	
SHEET 4 OF 17	

C-102

DRAWFORM REVISION SEPT 2001

FILENAME: 033A0460C-102.DWG, UPDATED ON 12/15/03 AT 08:06, XREFS: 033A0460PROJ-INFO, 033A0460BASE

PILINGS ARE VISIBLE AS LUMPS IN EXISTING PAVEMENT. VERIFY LOCATION OF EXISTING PILINGS.

STORM DRAINAGE STRUCTURES

1 E.S. CI
RIM=12.21
F/L=8.86
INV.=UNKNOWN

2 E.S. CI
RIM=11.07
F/L=8.62
INV.=UNKNOWN

PK NAIL
EL.9.08

CONC. PAD

STM PIT

PAV. PATCH

COLUMN

16.96 LOADING DOCK

BUILDING U-117

STM VENT

E. EMH

ESTM

THIRD AVE.

LIMITS OF DEMOLITION

DEMOLITION KEY & NOTES

1. REMOVE APPROX. 1,020 SY. OF EXIST. 2" THICK BIT. CONC.
2. REMOVE APPROX. 229 LF. OF EXIST. PCC CURB.
3. REMOVE APPROX 10 EXIST. CONCRETE PILING CAPS (TYP). (SEE PILING DEMO DETAIL, SHEET C-501)
4. SAWCUT ALL BIT. CONC. AND PCC EDGES FOR REMOVAL.
5. ALL UTILITY STRUCTURES WILL REMAIN AS EXISTING.
6. REFER TO SHEET C-001 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.

GRAPHIC SCALE

IF THIS SHEET IS LESS THAN 22" x 33", IT IS A REDUCED SIZE DRAWING

1"=10' 0' 10' 20' 30' 40' 50'

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

APPROVED
ACTIVITY – SATISFACTORY TO
DATE
APPROVED
FOR EFD FOR COMMANDER NAVFAC
12/11/03
DATE

A/E	EFD
DESIGN	JMF
DRAWN	JMF
REVIEW	TAR
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION NORFOLK
ATLANTIC DIVISION
NORFOLK NAVAL STATION
NORFOLK, VIRGINIA
NORFOLK, VA

REPAIR PARKING LOT WEST OF BUILDING U-132

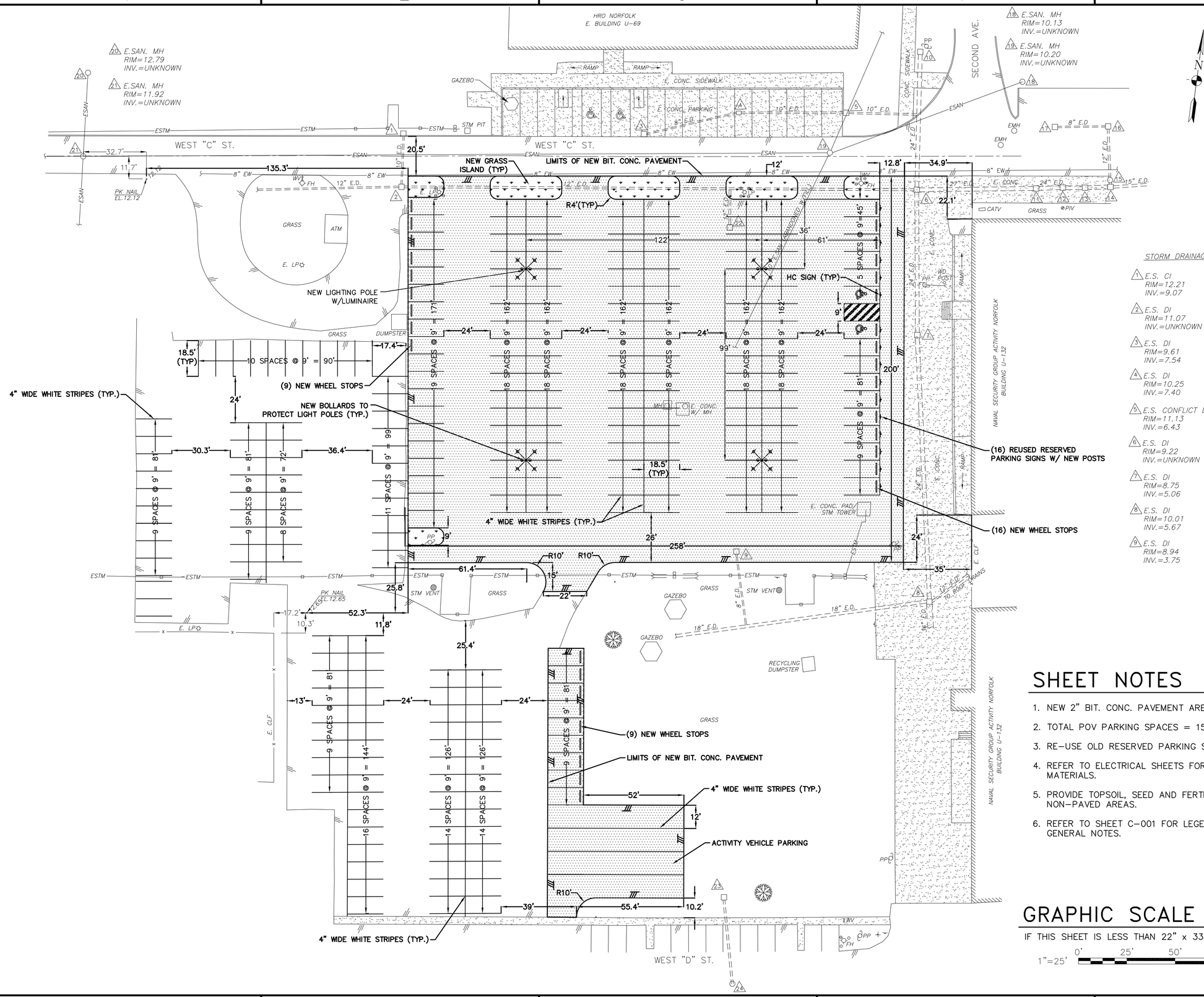
DEMOLITION PLAN – U-117

CODE ID. NO. 80091 SIZE D
SCALE: 1"=10'
EFD NO.
STA. PROJ. NO. R308
SPEC. NO.
CONSTR. CONTR. NO. N62470-03-C-3040
NAVFAC DRAWING NO. 4503337
SHEET 5 OF 17

C-103

DRAWFORM REVISION SEPT 2001

FILENAME: 033A0460C-103.DWG, UPDATED ON 12/15/03 AT 08:07, XREFS: 033A0460PROJ-INFO, 033A0460BASE



STORM DRAINAGE STRUCTURES

1. E.S. CI RIM=12.21 INV.=9.07
2. E.S. DI RIM=11.07 INV.=UNKNOWN
3. E.S. DI RIM=9.61 INV.=7.54
4. E.S. DI RIM=10.25 INV.=7.40
5. E.S. CONFLICT DI RIM=11.13 INV.=6.43
6. E.S. DI RIM=9.22 INV.=UNKNOWN
7. E.S. DI RIM=8.75 INV.=5.06
8. E.S. DI RIM=10.01 INV.=5.67
9. E.S. DI RIM=8.94 INV.=3.75
10. E.S. DI RIM=10.80 INV.=5.84
11. E.S. DI RIM=8.56 INV.=4.41
12. E.S. DI RIM=8.25 INV.=4.36
13. E.S. DI RIM=8.09 INV.=5.20
14. E.S. DI RIM=7.98 INV.=4.65
15. E.S. MH RIM=7.98 INV.=4.65
16. E.S. DI RIM=8.59 INV.=5.36
17. E.S. DI RIM=8.65 INV.=6.46
22. E.S. DI RIM=8.48 INV.=5.68
23. E.S. DI RIM=13.28 INV.=10.99
24. E.S. MH RIM=13.29 INV.=UNKNOWN

18. E.SAN. MH RIM=10.13 INV.=UNKNOWN
19. E.SAN. MH RIM=10.20 INV.=UNKNOWN
20. E.SAN. MH RIM=12.79 INV.=UNKNOWN
21. E.SAN. MH RIM=11.92 INV.=UNKNOWN

SHEET NOTES

1. NEW 2" BIT. CONC. PAVEMENT AREA = 6,100 SY.
2. TOTAL POV PARKING SPACES = 151, PLUS 2 H.C. SPACES.
3. RE-USE OLD RESERVED PARKING SIGNS WITH NEW SIGN POSTS.
4. REFER TO ELECTRICAL SHEETS FOR NEW LIGHTING LAYOUT AND MATERIALS.
5. PROVIDE TOPSOIL, SEED AND FERTILIZER TO ALL DISTURBED NON-PAVED AREAS.
6. REFER TO SHEET C-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

GRAPHIC SCALE

IF THIS SHEET IS LESS THAN 22" x 33", IT IS A REDUCED SIZE DRAWING

1"=25' 0' 25' 50' 75' 100' 125'

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

APPROVED
ACTIVITY - SATISFACTORY TO
DATE
APPROVED
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11/19/03
DATE

A/E	EFD
DESIGN	JMF
DRAWN	JMF
REVIEW	TAR
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION ATLANTIC DIVISION
NORFOLK, VIRGINIA
NORFOLK NAVAL STATION NORFOLK, VA
REPAIR PARKING LOT WEST OF BUILDING U-132
LAYOUT AND UTILITY PLAN - U-132

CODE ID. NO. 80091	SIZE D
SCALE:	1"=25'
EFD NO.	
STA. PROJ. NO.	R308
SPEC. NO.	
CONSTR. CONTR. NO.	N62470-03-C-3040
NAVFAC DRAWING NO.	4503338
SHEET	6 OF 17

C-104

DRAWFORM REVISION SEPT 2001

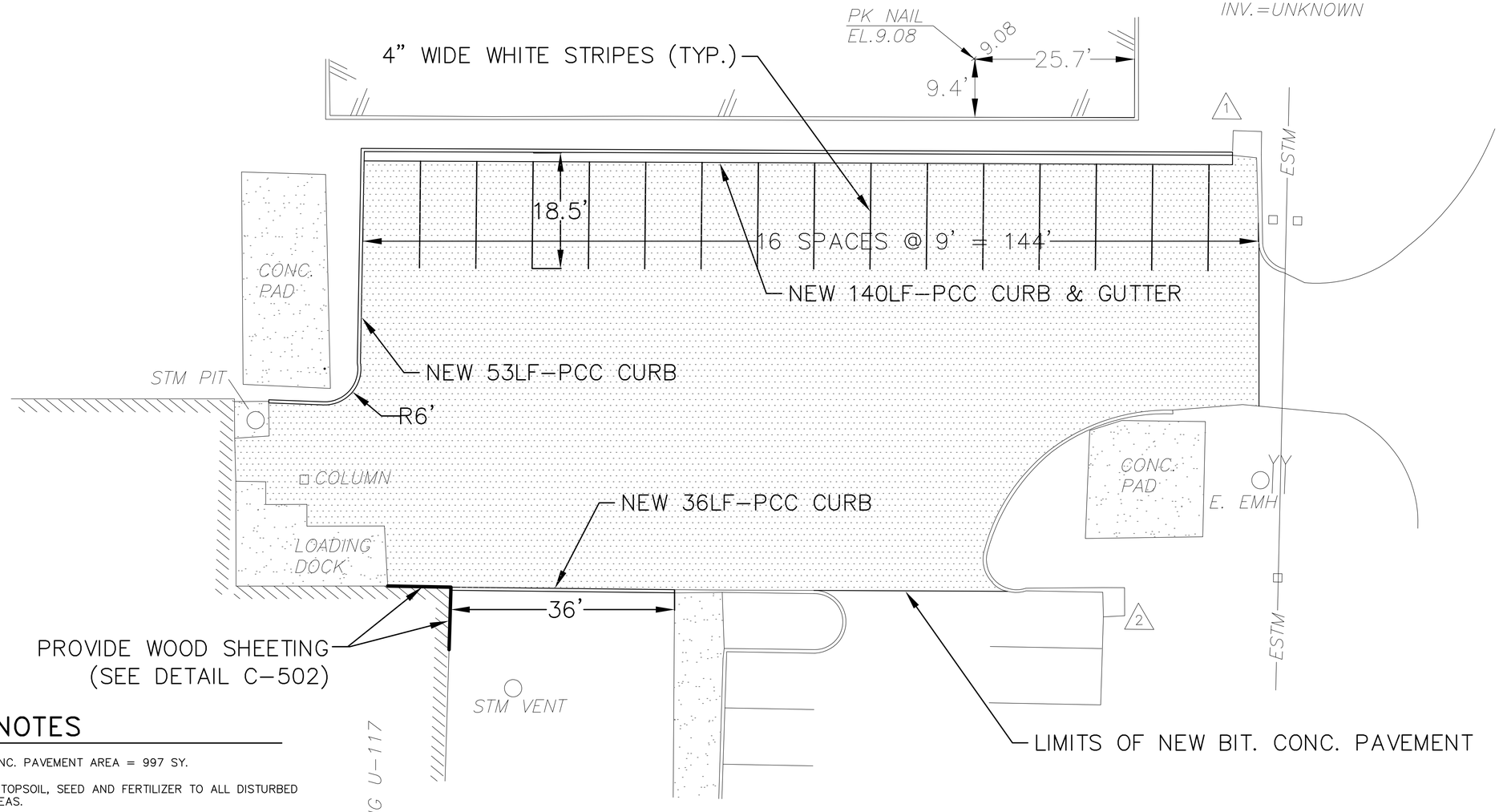
DESCRIPTION | DATE | APPR | STM

FILENAME: 033A0460C-104.DWG, UPDATED ON 12/15/03 AT 08:07, XREFS: 033A0460PROJ-INFO, 033A0460BASE

STORM DRAINAGE STRUCTURES

1 E.S. CI
RIM=12.21
F/L=8.86
INV.=UNKNOWN

2 E.S. CI
RIM=11.07
F/L=8.62
INV.=UNKNOWN



SHEET NOTES

1. NEW 2" BIT. CONC. PAVEMENT AREA = 997 SY.
2. PROVIDE 4" OF TOPSOIL, SEED AND FERTILIZER TO ALL DISTURBED NON-PAVED AREAS.
3. REFER TO SHEET C-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

GRAPHIC SCALE

IF THIS SHEET IS LESS THAN 22" x 33", IT IS A REDUCED SIZE DRAWING

1"=10' 0' 10' 20' 30' 40' 50'

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

APPROVED
ACTIVITY – SATISFACTORY TO
DATE
APPROVED
FOR EFD FOR COMMANDER NAVFAC
11/19/03
DATE

A/E	EFD
DESIGN	JMF
DRAWN	JMF
REVIEW	TAR
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	JSC
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION NORFOLK
ATLANTIC DIVISION
NORFOLK NAVAL STATION
NORFOLK, VIRGINIA
NORFOLK, VA

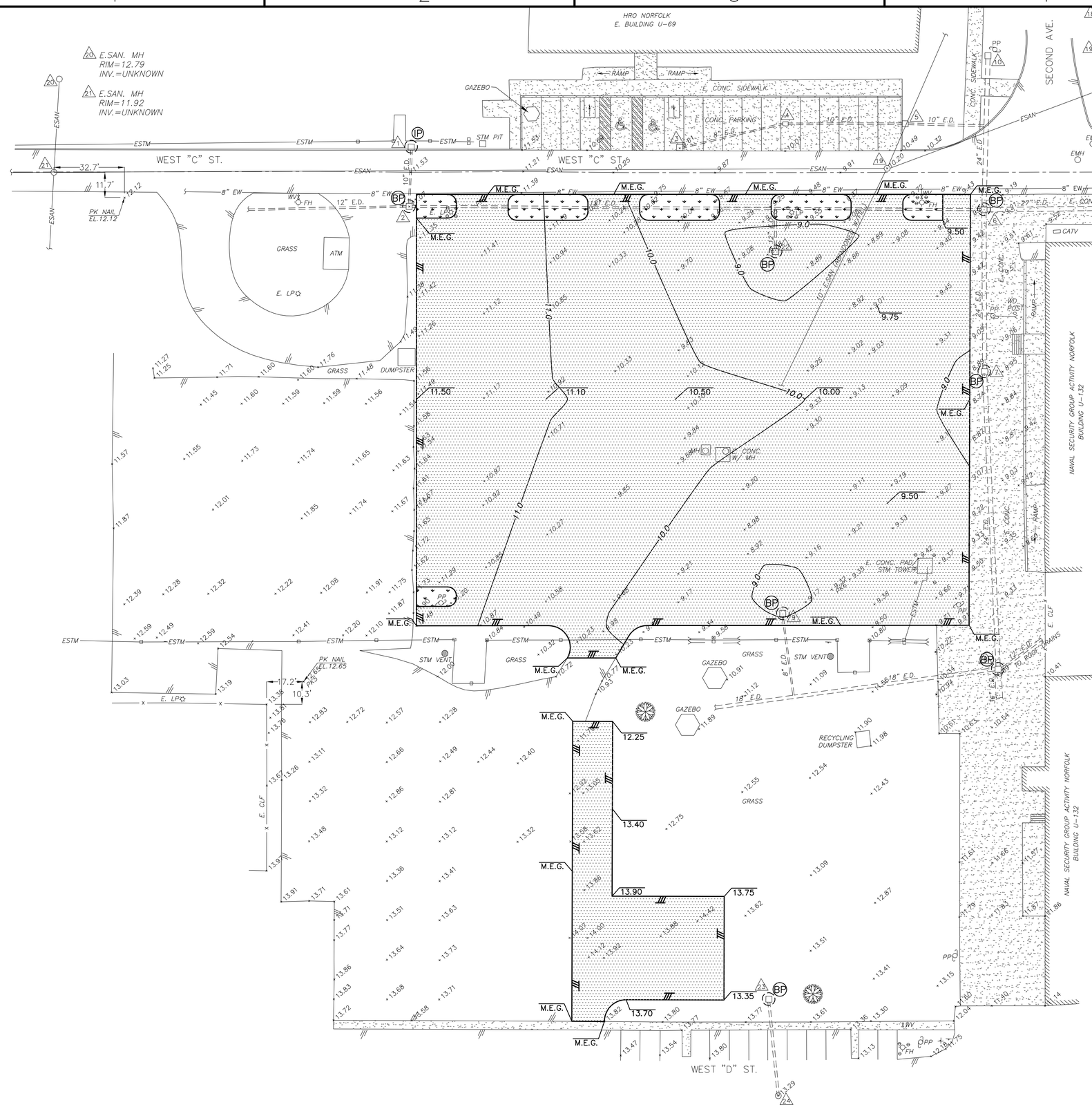
REPAIR PARKING LOT WEST OF BUILDING U-132

LAYOUT AND UTILITY PLAN – U-117

CODE ID. NO. 80091 | SIZE D
SCALE: 1"=10'
EFD NO.
STA. PROJ. NO. R308
SPEC. NO.
CONSTR. CONTR. NO.
N62470-03-C-3040
NAVFAC DRAWING NO.
4503339
SHEET 7 OF 17

C-105

DRAWFORM REVISION SEPT 2001



STORM DRAINAGE STRUCTURES

1. E.S. CI RIM=12.21 INV.=9.07
2. E.S. DI RIM=11.07 INV.=UNKNOWN
3. E.S. DI RIM=9.61 INV.=7.54
4. E.S. DI RIM=10.25 INV.=7.40
5. E.S. CONFLICT DI RIM=11.13 INV.=6.43
6. E.S. DI RIM=9.22 INV.=UNKNOWN
7. E.S. DI RIM=8.75 INV.=5.06
8. E.S. DI RIM=10.01 INV.=5.67
9. E.S. DI RIM=8.94 INV.=3.75
10. E.S. DI RIM=10.80 INV.=5.84
11. E.S. DI RIM=8.56 INV.=4.41
12. E.S. DI RIM=8.25 INV.=4.36
13. E.S. DI RIM=8.09 INV.=5.20
14. E.S. DI RIM=7.98 INV.=4.65
15. E.S. MH RIM=7.98 INV.=4.65
16. E.S. DI RIM=8.59 INV.=5.36
17. E.S. DI RIM=8.65 INV.=6.46
22. E.S. DI RIM=8.48 INV.=5.68
23. E.S. DI RIM=13.28 INV.=10.99
24. E.S. MH RIM=13.29 INV.=UNKNOWN

SHEET NOTES

1. ALL GRADE TRANSITIONS BETWEEN NEW AND EXISTING SHALL BE SMOOTH AND GRADUAL WITH NO SHARP OR ABRUPT CHANGES.
2. MATCH RIM ELEVATIONS AT EXISTING DROP INLETS AND OTHER UTILITY STRUCTURES.
3. FILL AREAS WHERE PILINGS TOPS WERE REMOVED WITH SUITABLE FILL MATERIAL. (SEE PILING REMOVAL AND REPAIR DETAIL, SHEET C-501)

GRAPHIC SCALE

IF THIS SHEET IS LESS THAN 22" x 33", IT IS A REDUCED SIZE DRAWING

1"=25' 0' 25' 50' 75' 100' 125'

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

APPROVED
ACTIVITY – SATISFACTORY TO
DATE
APPROVED
FOR EFD FOR COMMANDER NAVFAC
4/11/03
DATE

A/E	EFD
DESIGN	JMF
DRAWN	JMF
REVIEW	TAR
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION NORFOLK
ATLANTIC DIVISION
NORFOLK NAVAL STATION
NORFOLK, VIRGINIA
NORFOLK, VA

REPAIR PARKING LOT WEST OF BUILDING U-132

GRADING AND DRAINAGE PLAN – U-132

CODE ID. NO. 80091	SIZE D
SCALE:	1"=25'
EFD NO.	
STA. PROJ. NO.	R308
SPEC. NO.	
CONSTR. CONTR. NO.	N62470-03-C-3040
NAVFAC DRAWING NO.	4503340
SHEET	8 OF 17

C-106

DRAWFORM REVISION SEPT 2001

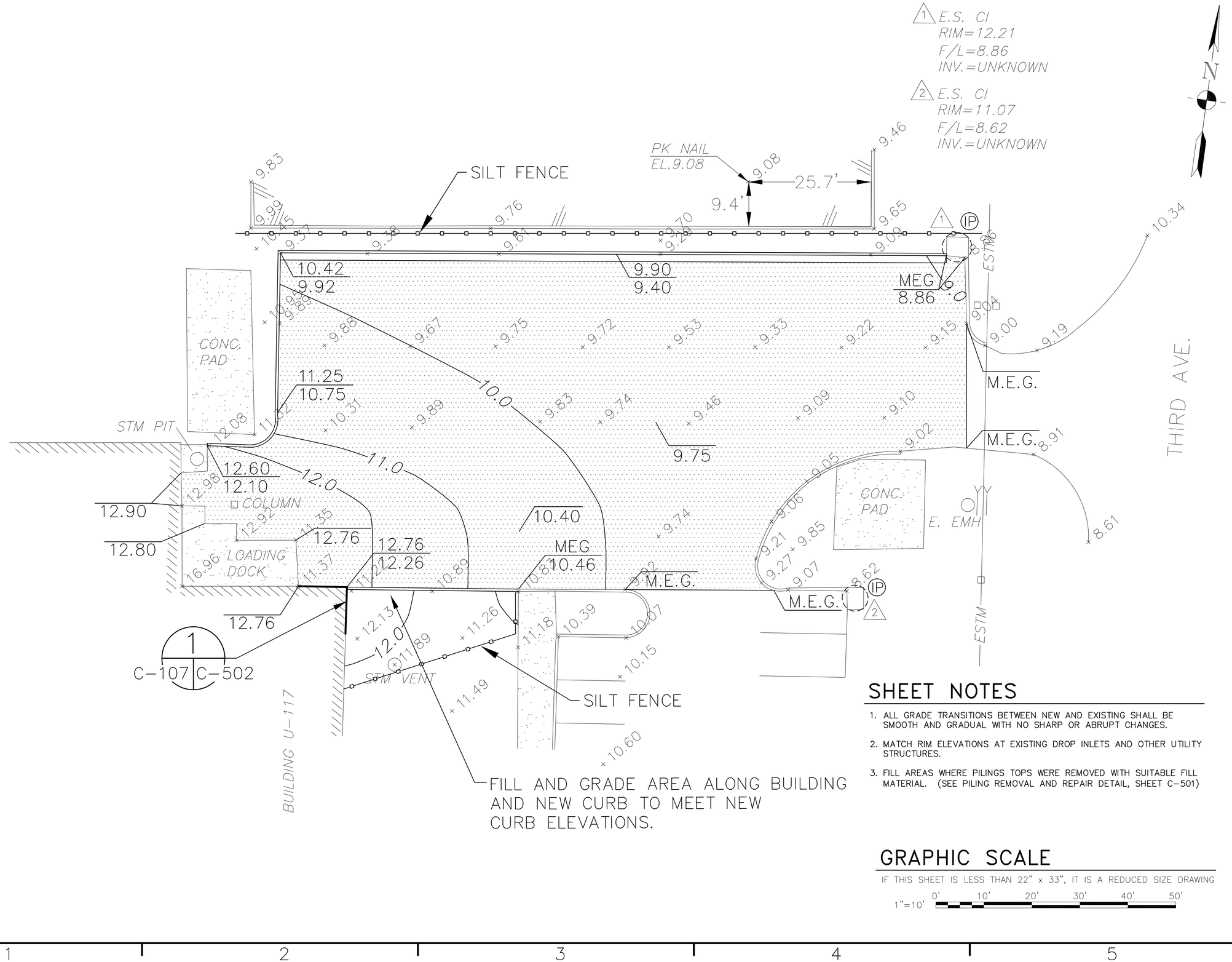
DESCRIPTION | DATE | APPR | STN

FILENAME: 033A0460C-106.DWG, UPDATED ON 12/18/03 AT 13:14, XREFS: 033A0460BASE, 033A0460PROJ-INFO

STORM DRAINAGE STRUCTURES

1 E.S. CI
RIM=12.21
F/L=8.86
INV.=UNKNOWN

2 E.S. CI
RIM=11.07
F/L=8.62
INV.=UNKNOWN



SHEET NOTES

1. ALL GRADE TRANSITIONS BETWEEN NEW AND EXISTING SHALL BE SMOOTH AND GRADUAL WITH NO SHARP OR ABRUPT CHANGES.
2. MATCH RIM ELEVATIONS AT EXISTING DROP INLETS AND OTHER UTILITY STRUCTURES.
3. FILL AREAS WHERE PILINGS TOPS WERE REMOVED WITH SUITABLE FILL MATERIAL. (SEE PILING REMOVAL AND REPAIR DETAIL, SHEET C-501)

GRAPHIC SCALE

IF THIS SHEET IS LESS THAN 22" x 33", IT IS A REDUCED SIZE DRAWING

1"=10' 0' 10' 20' 30' 40' 50'

	APPR	DATE	DESCRIPTION	STN.

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

APPROVED

ACTIVITY – SATISFACTORY TO

DATE

APPROVED
FOR EFD FOR COMMANDER NAVFAC
11/17/03

DATE

A/E	EFD
DESIGN	JMF
DRAWN	JMF
REVIEW	TAR
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA
NAVAL STATION
ATLANTIC DIVISION
NORFOLK NAVAL STATION
NORFOLK, VA

REPAIR PARKING LOT WEST OF BUILDING U-132

GRADING AND DRAINAGE PLAN – U-117

CODE ID. NO. 80091	SIZE D
SCALE: 1"=10'	
EFD NO.	
STA. PROJ. NO. R308	
SPEC. NO.	
CONSTR. CONTR. NO. N62470-03-C-3040	
NAVFAC DRAWING NO. 4503341	
SHEET 9 OF 17	

C-107

DRAWFORM REVISION SEPT 2001

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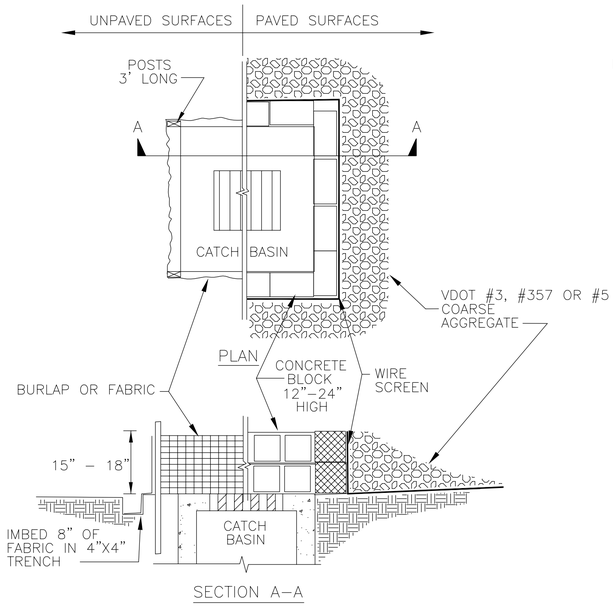
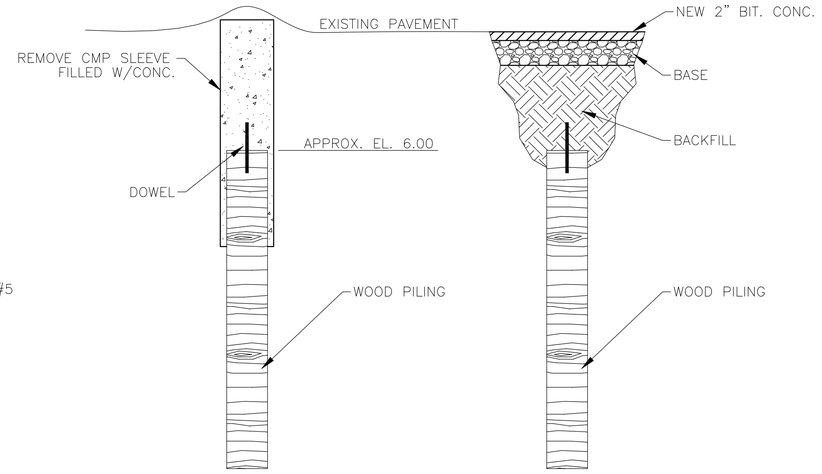


BASIN PROTECTION (BP)

NOT TO SCALE

NOTE:

1. INSTALL BASIN PROTECTION AROUND EXISTING STORM CATCH BASINS WITHIN LIMITS OF CONSTRUCTION AND BASINS DIRECTLY ADJACENT TO THE DISTURBED DRAINAGE AREA.
2. INSTALL STORM BASIN PROTECTION ACCORDING TO THE VIRGINIA SOIL AND WATER CONSERVATION COMMISSION'S (VSWCC) 1992 VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH), STANDARD 3.07.

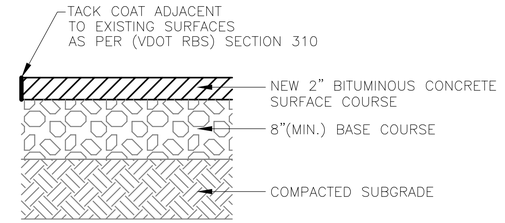


COMPOSITE PILING REMOVAL & REPAIR

NOT TO SCALE

NOTE:

1. EXISTING PILES: COMPOSITE CONSTRUCTION WITH BEARING CAPACITY OF 30 TONS EACH; CUT–OFF OF WOOD PILES IS AT APPROX. ELEVATION 6.00.
2. PROPOSED PILE DEMOLITION METHOD: THE CMP SLEEVE W/CONC. WILL BE LIFTED AND DISCONNECTED FROM THE WOOD PILING WITH A BACKHOE AND CHAIN.
3. BACKFILL PILING DEMOLITION WITH CLEAN SAND. PLACE FILL MATERIAL IN 6–INCH LIFTS AND COMPACT TO 95% OF ASTM D 698.

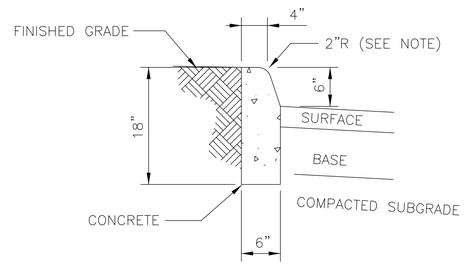


NEW BITUMINOUS CONCRETE PAVEMENT

NOT TO SCALE

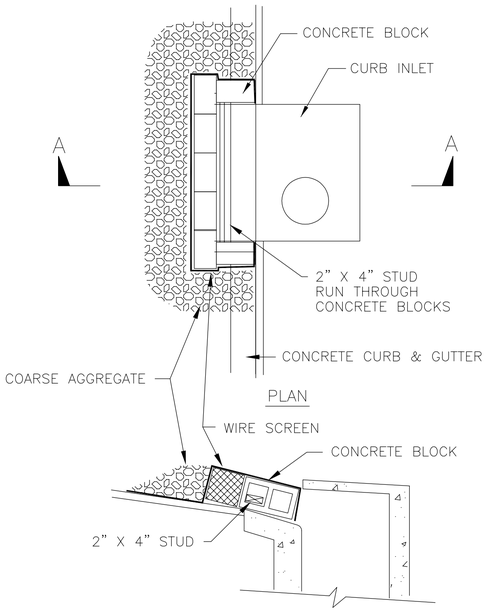
NOTE:

1. REMOVE EXISTING PAVEMENT AND REPLACE WITH NEW 2" BIT. CONC. PAVEMENT.
2. REMOVE TOP OF EXISTING BASE COURSE NECESSARY TO OBTAIN THE NEW PAVEMENT ELEVATIONS. IF THE RESULTING BASE COURSE THICKNESS IS LESS THAN 8", NOTIFY THE CONTRACTING OFFICER.
3. INSTALL ADDITIONAL NEW BASE COURSE MATERIAL IN AREAS WHERE THE PAVEMENT ELEVATIONS HAVE BEEN RAISED.
4. IN EXISTING GRASSED AREAS WHERE NEW BIT. CONC. IS PROPOSED, COMPACT TOP 12" OF SUBGRADE TO 95% OF ASTM D 698 AND INSTALL 8" BASE COURSE IN ACCORDANCE WITH (VDOT RBS), SECTION 208.



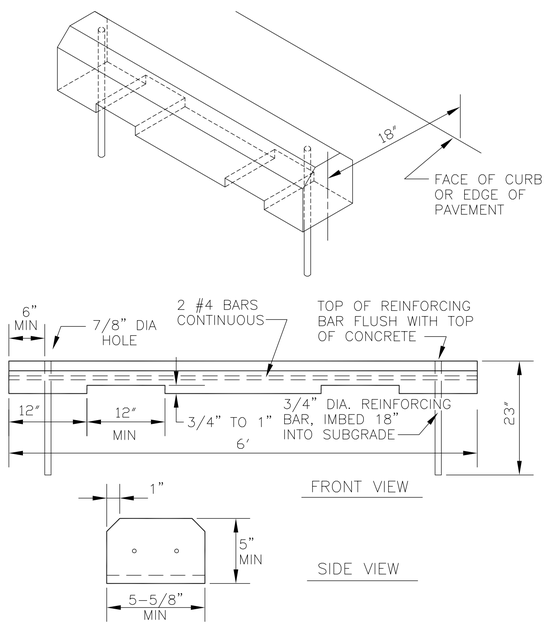
CURB

NOT TO SCALE



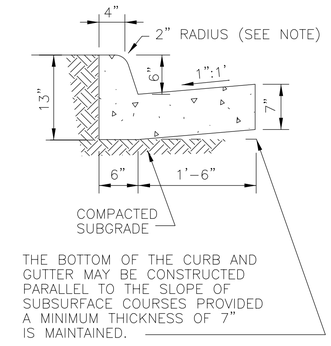
INLET PROTECTION (IP)

NOT TO SCALE



PARKING BUMPER

(PRECAST CONCRETE)
NOT TO SCALE



THE BOTTOM OF THE CURB AND GUTTER MAY BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBSURFACE COURSES PROVIDED A MINIMUM THICKNESS OF 7" IS MAINTAINED.

CURB AND GUTTER

NOT TO SCALE

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

APPROVED

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DATE

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FOR EFD FOR COMMANDER NAVFAC
11/11/03

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A/E	EFD
DESIGN	JMF
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CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	JSC
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA
NAVAL STATION NORFOLK
ATLANTIC DIVISION
NAVAL STATION NORFOLK, VA

REPAIR PARKING LOT WEST OF BUILDING U-132

SITE DETAILS

CODE ID. NO. 80091 | SIZE D

SCALE: NONE

EFD NO.

STA. PROJ. NO. R308

SPEC. NO.

CONSTR. CONTR. NO.
N62470-03-C-3040

NAVFAC DRAWING NO.
4503342

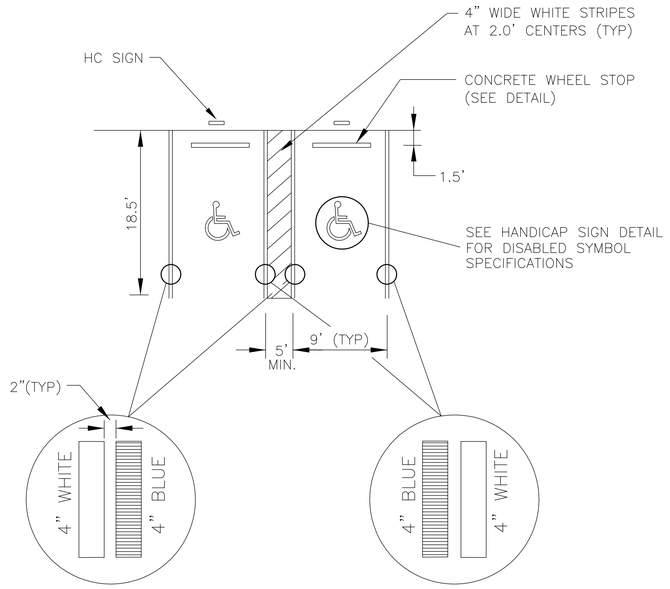
SHEET 10 OF 17

C-501

DRAWFORM REVISION SEPT 2001

DATE | APPR | DESCRIPTION | NUM

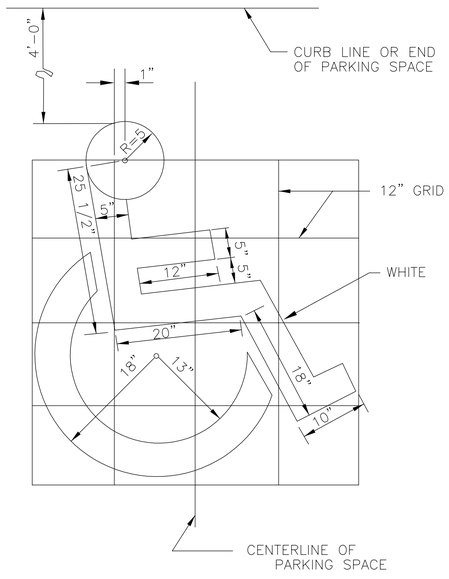
FILENAME: 033A0480C-501.DWG, UPDATED ON 12/18/03 AT 13:17. XREFS: 033A0480PROJ-INFO



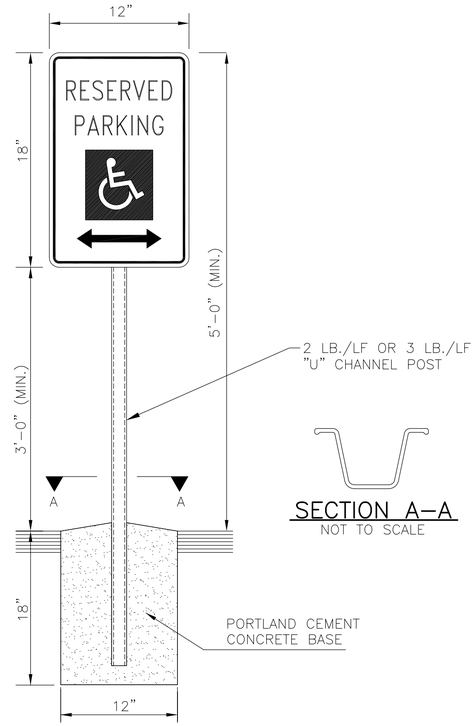
NOTES:

1. EACH SUCH PARKING SPACE SHALL BE CONSPICUOUSLY OUTLINED IN BLUE PAINT, AND SHALL BE POSTED AND MAINTAINED WITH A PERMANENT, ABOVE GRADE SIGN BEARING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY, OR THE CAPTION "PARKING BY DISABLED PERMIT ONLY." OR BEARING BOTH SUCH SYMBOL AND CAPTION. SUCH SIGNS SHALL NOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE.

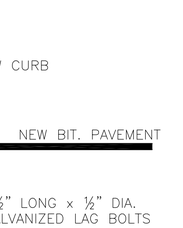
HANDICAP PARKING STRIPING
NOT TO SCALE

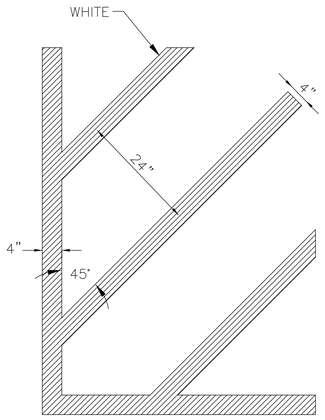


HANDICAP PARKING SYMBOL
NOT TO SCALE

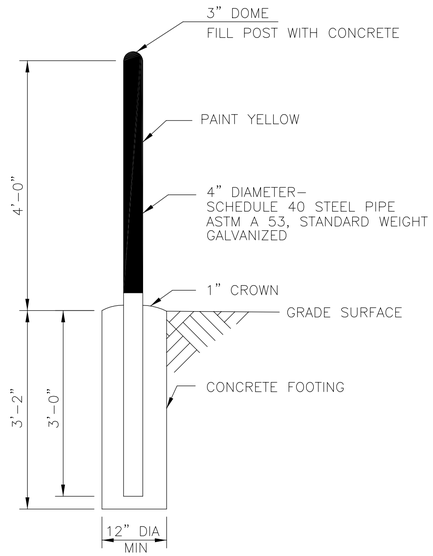


HANDICAP SIGN (MUTCD, R7-8)
NOT TO SCALE



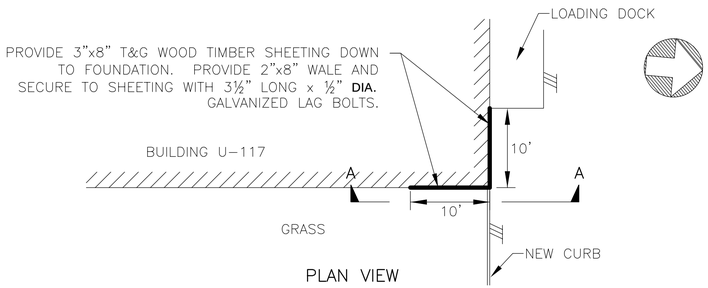


NO PARKING STRIPING
NOT TO SCALE



GUARD POST
NOT TO SCALE

SECTION A-A



PLAN VIEW

WOOD TIMBER SHEETING
NOT TO SCALE

1
C-107 C-502

DESIGNED & ENGINEERED BY: LANTDIV NAVAL FACILITIES ENGINEERING COMMAND	
APPROVED	
ACTIVITY – SATISFACTORY TO	
DATE	
APPROVED FOR EFD FOR COMMANDER NAVFAC	11/17/03
DATE	
A/E	EFD
DESIGN	JMF
DRAWN	JMF
REVIEW	TAR
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CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	JSC
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NORFOLK, VIRGINIA
NAVAL STATION
NORFOLK NAVAL STATION
NORFOLK, VA

REPAIR PARKING LOT
WEST OF BUILDING U-132

CODE ID. NO. 80091	SIZE D
SCALE: NONE	
EFD NO.	
STA. PROJ. NO. R308	
SPEC. NO.	
CONSTR. CONTR. NO. N62470-03-C-3040	
NAVFAC DRAWING NO. 4503343	
SHEET 11 OF 17	

C-502

DRAWFORM REVISION SEPT 2001

FILENAME: 033A0460C-502.DWG, UPDATED ON 12/18/03 AT 13:32, XREFS: 033A0460PROJ-INFO

CONSTRUCTION NOTES

GENERAL CONSTRUCTION NOTES:

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH 2002 VIRGINIA DEPARTMENT OF TRANSPORTATION'S ROAD AND BRIDGE SPECIFICATION (VDOT RBS), EXCEPT AS OTHERWISE NOTED, ALSO PROVISIONS THEREIN FOR METHOD OF MEASUREMENT AND PAYMENT DO NOT APPLY. REFERENCES TO "ENGINEER" AND "STATE" SHALL BE INTERPRETED TO MEAN "CONTRACTING OFFICER" AND THE "FEDERAL GOVERNMENT" RESPECTIVELY.

2. VDOT RBS IS AVAILABLE ON LINE AT HTTP://VIRGINIADOT.ORG/BUSINESS/LOCDES/DEFAULT.ASP, UNDER "PUBLICATIONS & MANUALS" SELECT "ROAD AND BRIDGE SPEC."

2. REFERENCES INDICATED HEREIN SHALL BE THE MOST CURRENT VERSION AVAILABLE AT THE TIME OF SIGNATURE OF THESE DRAWINGS, UNLESS NOTED OTHERWISE.

EROSION AND SEDIMENT CONTROL:

1. PROVIDE EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH VIRGINIA SOIL AND WATER CONSERVATION COMMISSION'S (VSWCC) 1992 VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH). THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK IS AVAILABLE ON-LINE AT HTTP://WWW.DCR.STATE.VA.US/SW/E&S-FTP.HTM.

2. TEMPORARY SEEDING- PROVIDE TEMPORARY SEED, LIME, AND FERTILIZER IN ACCORDANCE WITH VSWCC VESCH, STANDARD 3.31. WITHIN 48 HOURS AFTER ATTAINING THE GRADING INCREMENT SPECIFIED HEREIN, PROVIDE SEED, FERTILIZER, MULCH AND WATER ON GRADED AREAS WHEN ANY OF THE FOLLOWING CONDITIONS OCCUR:

A. GRADING OPERATIONS STOP FOR AN ANTICIPATED DURATION OF 30 DAYS OR MORE.

B. WHEN IT IS IMPOSSIBLE OR IMPRACTICAL TO BRING AN AREA TO FINISH GRADE SO THAT PERMANENT SEEDING OPERATIONS CAN BE PERFORMED WITHOUT SERIOUS DISTURBANCE FROM ADDITIONAL GRADING.

C. GRADING OPERATIONS FOR A SPECIFIC AREA ARE COMPLETED AND THE SEEDING SEASONS SPECIFIED FOR PERMANENT SEEDING IS MORE THAN 30 DAYS AWAY.

D. WHEN AN IMMEDIATE COVER IS REQUIRED TO MINIMIZE EROSION, OR WHEN EROSION HAS OCCURRED.

E. PROVIDE ON EROSION CONTROL DEVICES CONSTRUCTED USING SOIL MATERIALS.

4. STATE STANDARD FILTER BARRIER-PROVIDE VSWCC VESCH STANDARD 3.05, SILT FENCE WHERE INDICATED.

5. TEMPORARY CONSTRUCTION ENTRANCE-PROVIDE TEMPORARY CONSTRUCTION ENTRANCE WHERE INDICATED IN ACCORDANCE WITH VSWCC VESCH STANDARD 3.02. PROVIDE FILTER FABRIC AND AGGREGATE. PLACE FABRIC IN ONE PIECE, WHERE POSSIBLE. OVERLAP FABRIC JOINTS A MINIMUM OF 300 MM.

EARTHWORK:

1. EXISTING SUBGRADE SHOULD BE USED TO THE EXTENT POSSIBLE.

2. ADDITIONAL MATERIAL REQUIRED UNDER PAVEMENTS OR SIDEWALKS SHALL BE IN ACCORDANCE WITH ASTM D 2487, CLASSIFICATION GW, GP, GM, SW, SP, SM WITH A MAXIMUM ASTM D 4318 LIQUID LIMIT OF 35, MAXIMUM ASTM D 4318 PLASTICITY INDEX OF 12, AND A MAXIMUM OF 25 PERCENT BY WEIGHT PASSING ASTM D 1140, NO. 200 SIEVE.

3. ADDITIONAL MATERIAL REQUIRED FOR OPEN AREAS, SUCH AS GRASS AREAS, SHALL BE NATURAL, FRIABLE SOIL REPRESENTATIVE OF PRODUCTIVE, WELL-DRAINED SOILS IN THE AREA, FREE OF SUBSOIL, STUMPS, ROCKS LARGER THAN ONE-INCH DIAMETER, BRUSH, WEEDS, TOXIC SUBSTANCES, AND OTHER MATERIAL DETRIMENTAL TO PLANT GROWTH. AMEND TOPSOIL PH RANGE TO OBTAIN A PH OF 5.5 TO 7.

4. COMPACTION-FOR AREAS UNDER PAVEMENTS AND SIDEWALKS COMPACT TOP 12 INCHES OF SUBGRADES TO 95 PERCENT OF ASTM D 698. PLACE FILL MATERIAL IN 6 INCH MAXIMUM LIFTS AND COMPACT TO 95 PERCENT OF ASTM D 698.

5. PERMANENT SEEDING- PROVIDE STATE CERTIFIED SEED MIXTURE AS SPECIFIED IN VSWCC VESCH STANDARD 3.32. PLANT FESCUE DURING FALL MONTHS, PLANT BERMUDA DURING SUMMER MONTHS.

BITUMINOUS CONCRETE PAVEMENT:

1. WEATHER RESTRICTIONS-DO NOT PRODUCE OR PLACE BITUMINOUS CONCRETE WHEN THE WEATHER IS RAINY OR FOGGY, WHEN THE BASE COURSE IS FROZEN OR HAS EXCESS MOISTURE, OR WHEN THE AMBIENT TEMPERATURE IS LESS THAN 40 DEGREES F IN THE SHADE AWAY FROM ARTIFICIAL HEAT.

2. BITUMINOUS CONCRETE MIX-BITUMINOUS CONCRETE MIX SHALL BE IN ACCORDANCE WITH VDOT RBS, SECTION 211, TYPE SM-9.5 D FOR MATERIAL AND MIX. PROVIDE CRUSHED STONE AGGREGATES FOR THE BITUMINOUS MIX.

A. COMPACTION-COMPACT BITUMINOUS CONCRETE TO 96 PERCENT ASTM D 698 MAXIMUM LABORATORY DENSITY.

3. STONE BASE COARSE-STONE BASE COURSE SHALL BE IN ACCORDANCE WITH VDOT RBS, SECTION 208, TYPE 1, SIZE NO. 21A, 21B, OR 22.

A. COMPACTION-COMPACT STONE BASE COURSE TO 100 PERCENT ASTM D 698 MAXIMUM DRY DENSITY. MAINTAIN THE BASE SMOOTH AND TRUE TO GRADE AND CROSS SECTION UNTIL BITUMINOUS CONCRETE PLACEMENT.

4. TACK COAT-BITUMINOUS TACK COAT SHALL BE IN ACCORDANCE WITH VDOT RBS, SECTION 301. EMULSIFIED ASPHALTS SHALL BE DILUTED AT THE RATE OF ONE PART WATER TO ONE PART ASPHALT. PROVIDE TACK COAT ON EXISTING PAVEMENT AT THE RATE OF 0.10 GALLON RESIDUAL ASPHALT PER SQUARE YARD. THOROUGHLY CLEAN SURFACES TO RECEIVE THE TACK COAT IMMEDIATELY PRIOR TO APPLICATION OF TACK COAT. TACK COAT SHALL BE TACKY AT THE TIME OF BITUMINOUS CONCRETE PLACEMENT.

5. WHERE NEW PAVEMENT ABUTS EXISTING BITUMINOUS PAVEMENT, CUT EXISTING SURFACE COURSE ALONG STRAIGHT LINES APPROXIMATELY 6 INCHES FROM THE EDGE OF THE EXISTING PAVEMENT. CUTS SHALL BE VERTICAL AND EXTEND THE FULL DEPTH OF THE SURFACE COURSE. PRIOR TO BITUMINOUS CONCRETE PLACEMENT, APPLY TACK COAT TO EXPOSED EDGES OF COLD JOINTS.

6. PLACE BITUMINOUS CONCRETE PAVEMENT IN MAXIMUM 2 INCH LIFTS.

7. NO VEHICULAR TRAFFIC SHALL BE ALLOWED ON PAVEMENT FOR A MINIMUM OF 6 HOURS AFTER FINAL ROLLING, OR UNTIL BITUMINOUS CONCRETE HAS CURED, WHICHEVER IS LONGER.

CAST-IN-PLACE CONCRETE AND MISCELLANEOUS CONCRETE PAVEMENT:

1. CAST-IN-PLACE CONCRETE SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" ACI 318-02.

2. ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI AND BE AIR ENTRAINED.

3. REINFORCING BARS, ACI 301/301M UNLESS OTHERWISE SPECIFIED. ASTM A 615/A 615M WITH THE BARS MARKED A, S, W, GRADE 60; OR ASTM A 996/A 996M WITH THE BARS MARKED TYPE R, GRADE 60.

4. WELDED WIRE SHALL CONFORM TO ASTM A 185 OR ASTM A 497. PROVIDE FLAT SHEETS OF WELDED WIRE FABRIC FOR SLABS.

5. REINFORCING MARKED CONTINUOUS (CONT.) SHALL BE LAPPED 40 BAR DIAMETERS AT SPLICES.

6. LAP WELDED WIRE FABRIC 12 INCHES MINIMUM.

7. JOINTS:

A. EXPANSION/CONTRACTION JOINT FILLER: ASTM D1751, ASTM D1752, OR 100% RECYCLED MATERIAL MEETING ASTM D1752 (SUBPARAGRAPHS 5.1 TO 5.4). MATERIAL SHALL BE 1/2 INCH THICK, UNLESS OTHERWISE INDICATED. FILL EXPANSION JOINTS NOT EXPOSED TO WEATHER WITH PREFORMED JOINT FILLER MATERIAL. COMPLETELY FILL JOINTS EXPOSED TO WEATHER WITH JOINT FILLER MATERIAL AND JOINT SEALANT. DO NOT EXTEND REINFORCEMENT OR OTHER EMBEDDED METAL ITEMS BONDED TO THE CONCRETE THROUGH ANY EXPANSION JOINT UNLESS AN EXPANSION SLEEVE IS USED. PROVIDE CONTRACTION JOINTS, EITHER FORMED OR SAW CUT OR CUT WITH A JOINTING TOOL, TO THE INDICATED DEPTH AFTER THE SURFACE HAS BEEN FINISHED. SAWED JOINTS SHALL BE COMPLETED WITHIN 4 TO 12 HOURS AFTER CONCRETE PLACEMENT. PROTECT JOINTS FROM INTRUSION OF FOREIGN MATTER.

B. CONSTRUCTION JOINTS: LOCATE JOINTS TO LEAST IMPAIR STRENGTH. CONTINUE REINFORCEMENT ACROSS JOINTS UNLESS OTHERWISE INDICATED.

8. JOINT SEALANTS:

A. HORIZONTAL SURFACES, 3 PERCENT SLOPE, MAXIMUM: ASTM D1190 OR ASTM C920, TYPE M, CLASS 25, USE T.

B. VERTICAL SURFACES GREATER THAN 3 PERCENT SLOPE: ASTM C920, TYPE M, GRADE NS, CLASS 25, USE T.

9. CURBS AND GUTTERS-PROVIDE CONTRACTION JOINTS SPACED EVERY 10 FEET MAXIMUM UNLESS OTHERWISE INDICATED. CUT CONTRACTION JOINTS 3/4 INCH DEEP WITH A JOINTING TOOL AFTER THE SURFACE HAS BEEN FINISHED. PROVIDE EXPANSION JOINTS 2 INCH THICK AND SPACED EVERY 100 FEET MAXIMUM UNLESS OTHERWISE INDICATED. PERFORM PAVEMENT FINISH.

10. PAVEMENT FINISHES AND MISCELLANEOUS CONSTRUCTION- PROVIDE PAVEMENT AND MISCELLANEOUS CONSTRUCTION FINISH IN ACCORDANCE WITH ACI 302.1R, UNLESS OTHERWISE SPECIFIED. PROVIDE BROOMED FINISH FOR CONCRETE SIDEWALKS. FOR ALL OTHER CONCRETE, PROVIDE PAVEMENT FINISH.

A. FINISH-PLACE, CONSOLIDATE, AND IMMEDIATELY STRIKE OFF CONCRETE TO OBTAIN PROPER CONTOUR, GRADE, AND ELEVATION BEFORE BLEEDWATER APPEARS. PERMIT CONCRETE TO ATTAIN A SET SUFFICIENT FOR FLOATING AND SUPPORTING THE WEIGHT OF THE FINISHER AND EQUIPMENT. IF BLEEDWATER IS PRESENT PRIOR TO FLOATING THE SURFACE, DRAG THE EXCESS WATER OFF OR REMOVE BY ABSORPTION WITH POROUS MATERIALS. DO NOT USE DRY CEMENT TO ABSORB BLEEDWATER.

11. PRECAST CONCRETE BUMPER-PRECAST CONCRETE BUMPERS SHALL BE A STANDARD PRODUCT NORMALLY MANUFACTURED FOR THAT PURPOSE. SIZE SHALL BE AS INDICATED. CONCRETE SHALL DEVELOP A 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI MINIMUM. LOCATE PRECAST CONCRETE BUMPERS AS INDICATED AND CENTERED ON EACH PARKING SPACE.

PAVEMENT MARKINGS:

1. PAINT FOR PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH FEDERAL SPECIFICATION FS TT-P-1952, (1994; 2000; REV. D) PAINT, TRAFFIC AND AIRFIELD MARKINGS, WATER EMULSION BASE.

2. SUBMIT MANUFACTURER'S DATA SHEET FOR THE PAINT TO THE CONTRACTING OFFICER FOR APPROVAL PRIOR TO PLACEMENT.

3. UNLESS INDICATED OTHERWISE, PROVIDE PAINTED LINES 4 INCHES IN WIDTH. APPLY PAINT AFTER BITUMINOUS CONCRETE HAS CURED FOR A MINIMUM OF 7 DAYS, AND MINIMUM AMBIENT TEMPERATURE IS 40 DEGREES F. APPLY PAINT TO CLEAN, DRY SURFACES, AND PROTECT SURFACES FROM TRAFFIC UNTIL DRY. PROVIDE UNIFORM PAINT FILM OF SUFFICIENT THICKNESS TO COMPLETELY CONCEAL PAVEMENT.

STEEL:

1. ALL STEEL SHALL BE ASTM A 36.

2. HOT-DIP GALVANIZE ITEMS AFTER FABRICATION. GALVANIZING: ASTM A 123/A 123M, ASTM A 153/A 153M OR ASTM A 653/A 653M, G90, AS APPLICABLE.

TIMBER:

1. TIMBER SHEETING AND LUMBER SHALL BE SOUTHERN PINE, NO. 3, IN ACCORDANCE WITH SPIB 1003.

2. TREAT ALL TIMBER SHEETING AND LUMBER IN ACCORDANCE WITH AWPA C2 WITH A WATER BORNE PRESERVATIVE (AWPA P5) TO A RETENSION OF 0.6 PCF.

3. FIELD TREAT CUTS, BEVELS, NOTCHES, COUNTER BORES, AND ABRASIONS IN ACCORDANCE WITH AWPA M4.

APPR	DATE	DESCRIPTION	STM

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

APPROVED

ACTIVITY - SATISFACTORY TO

DATE

APPROVED
J.F. Bowen
FOR EFD FOR COMMANDER NAVFAC
4/11/03

DATE

A/E	EFD
DESIGN	JMF
DRAWN	JMF
REVIEW	TAR
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	JSC
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION NORFOLK
NORFOLK NAVAL STATION
NORFOLK, VIRGINIA
NORFOLK, VA

REPAIR PARKING LOT
WEST OF BUILDING U-132

CONSTRUCTION NOTES

CODE ID. NO. 80091 | SIZE D

SCALE: NONE

EFD NO.

STA. PROJ. NO. R308

SPEC. NO.

CONSTR. CONTR. NO.
N62470-03-C-3040

NAVFAC DRAWING NO.
4503344

SHEET 12 OF 17

C-701

DRAWFORM REVISION SEPT 2001

FILENAME: 033A0460C-701.DWG, UPDATED ON 12/15/03 AT 08:11, XREFS: 033A0460PROJ-INFO

LEGEND

- EXISTING POWER POLE.
- REMOVE EXISTING WOODEN LIGHT POLE.
- AREA/STREET LIGHTING POLE WITH LUMINAIRE.
- REMOVE EXISTING 480V AREA/STREET LIGHTING FIXTURE.
- EXISTING 480V AREA/STREET LIGHTING FIXTURE.
- **SD** REMOVE 480 VOLT SECONDARY (DUPLEX) CIRCUIT – #8 COPPER.
- USL 2–#8 & #8 GND IN 2" PVC CONDUIT – CONCRETE ENCASED.
- INDICATES FRONT.
- EXISTING TRANSFORMER.
- HANDHOLE, TYPE 6.
- (A) LIGHTING FIXTURE SYMBOL.

ABBREVIATIONS

A	AMPERES
C	CONDUIT
AFG	ABOVE FINISHED GRADE
C	CONDUIT
CKT	CIRCUIT
EXIST	EXISTING
GND	GROUND
HH	HANDHOLE
HPS	HIGH PRESSURE SODIUM
FT	FEET
PMT	PAD MOUNTED TRANSFORMER
PVC	POLYVINYL CHLORIDE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLTS

LIGHTING FIXTURE SCHEDULE

FIXTURE SYMBOL	SKETCH NO. & TYPE	NUMBER AND TYPE OF LAMPS	VOLTAGE	MOUNTING	NOTES
(A)	XL–2	HPS 400 WATTS	480V	XL–22G XL–28C	(1) (2) (3) (4) (5) (6)

FIXTURE NOTES

(1) LUMINAIRE: COOPER LIGHTING, LUMARK WARRIOR, NEMA BEAM TYPE 6HX5V (HPWR–65S–400–480V)

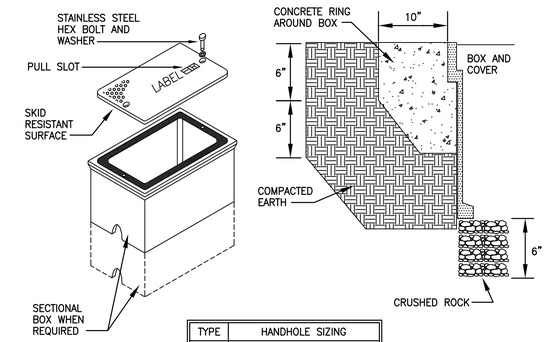
(2) LAMP: SYLVANIA, STANDARD LUMALUX HIGH PRESSURE SODIUM (LU400)

(3) POLE: BAYSHORE CONCRETE PRODUCTS CORPORATION, 45FT CENTRIFUGALLY CAST PRESTRESSED CONCRETE

(4) SEE PLANS FOR QUANTITY OF FIXTURES

(5) PROVIDE XL–34 GROUNDING

(6) LUMINAIRE MOUNTING BRACKETS: 2 OF TYPE C



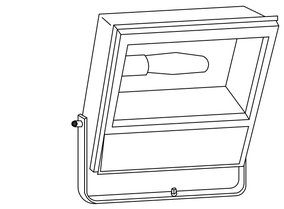
TYPE	HANDHOLE SIZING
5	12" X 12" X 24" DEEP
6	12" X 18" X 24" DEEP
7	12" X 24" X 24" DEEP
8	24" X 36" X 24" DEEP
9	30" X 48" X 24" DEEP

HANDHOLE REQUIREMENTS

1. HOUSING SHALL BE A POLYMER CONCRETE REINFORCED WITH A HEAVY WEAVE FIBERGLASS REINFORCING WITH COMPRESSIVE STRENGTH OF NO LESS THAN 10,000 PSI.
2. COVER AND BOX SHALL WITHSTAND A SERVICE LOAD OF NO LESS THAN 15,000 LBS OVER A 10" x 10" AREA.
3. PROVIDE STAINLESS STEEL BOLTS AND INSERTS.
4. PROVIDE WITH (2) 2 1/2" MOUSEHOLES.
5. PROVIDE LABEL "ELECTRICAL" FOR POWER HANDHOLES OR "TELEPHONE" FOR TELEPHONE HANDHOLES, OR AS INDICATED.

STANDARD ELECTRICAL HANDHOLE (NONTRAFFIC) (COMPOSITE/FIBERGLASS) TYPES 5, 6, 7, 8 & 9

SKETCH DATE	JUNE 2002	STYLE	UG–6



NOTE:
NEMA BEAM SPREAD CONFIGURATION SHALL BE AS INDICATED AND SHALL BE IN ACCORDANCE WITH I.E.S. DEFINITIONS.

LUMINAIRE REQUIREMENTS

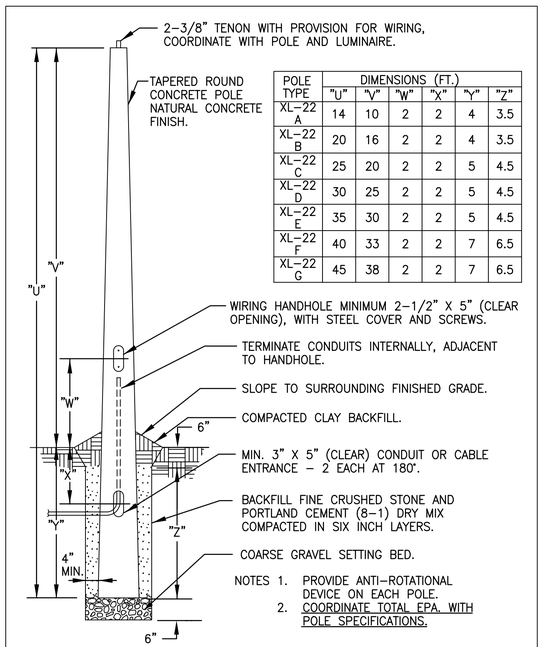
1. HOUSING – DIE CAST ALUMINUM OR FORMED AND SEAM WELDED ALUMINUM, WITH BAKED ENAMEL OR POLYESTER POWDER FINISH.
2. REFLECTOR – ANODIZED ALUMINUM.
3. DOOR – HINGED ALUMINUM, WITH GASKET AND CAPTIVE SCREWS OR CAM LATCH FASTENERS.
4. INTEGRAL MULTI–TAP BALLAST.
5. STAINLESS STEEL OR NONCORROSIVE HARDWARE.
6. PORCELAIN SOCKET WITH VIBRATION–PROOF LAMP GRIP SHELL.
7. SLIPFITTER FOR 2–3/8" TENON OR TRUNNION MOUNTING AS INDICATED.
8. PHOTOCELL WHEN INDICATED.
9. LAMP – 70 TO 1000 WATT – TYPE AND WATTAGE AS INDICATED.
10. PROVIDE 3/C #16 WEATHERPROOF CORD, MIN. 24" LONG (TRUNNION MT. ONLY).
11. LAMP STABILIZER, 1000 WATT SIZE ONLY.
12. LENS – TEMPERED, IMPACT RESISTANT, CLEAR GLASS.
13. UL LISTED – SUITABLE FOR OUTDOOR WET LOCATIONS.
14. HOUSING COLOR SHALL BE DARK BRONZE UNLESS INDICATED OTHERWISE.

MIN. E.P.A. 2.1 SQ. FT. – MAX. E.P.A. 5.5 SQ. FT.

FLOODLIGHT

SKETCH DATE	JUNE 2002	STYLE	XL–2

(A)

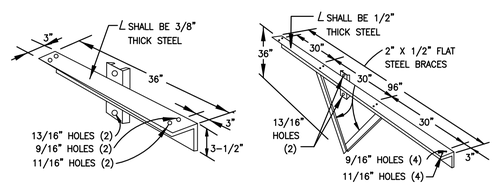


POLE TYPE	DIMENSIONS (FT.) "U"	"V"	"W"	"X"	"Y"	"Z"
XL–22 A	14	10	2	2	4	3.5
XL–22 B	20	16	2	2	4	3.5
XL–22 C	25	20	2	2	5	4.5
XL–22 D	30	25	2	2	5	4.5
XL–22 E	35	30	2	2	5	4.5
XL–22 F	40	33	2	2	7	6.5
XL–22 G	45	38	2	2	7	6.5

NOTES 1. PROVIDE ANTI–ROTATIONAL DEVICE ON EACH POLE.
2. COORDINATE TOTAL EPA WITH POLE SPECIFICATIONS.

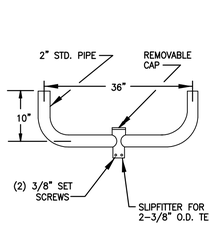
ROUND CONCRETE POLE, DIRECT SET TENON MOUNT

SKETCH DATE	JUNE 2002	STYLE	XL–22

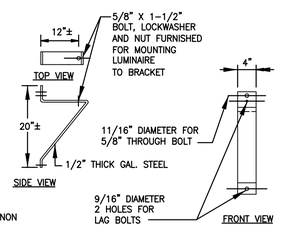


TWO LUMINAIRE MOUNTING BRACKET – "A"

FOUR LUMINAIRE MOUNTING BRACKET – "B"



TWO LUMINAIRE PIPE MOUNTING BRACKET – "C"

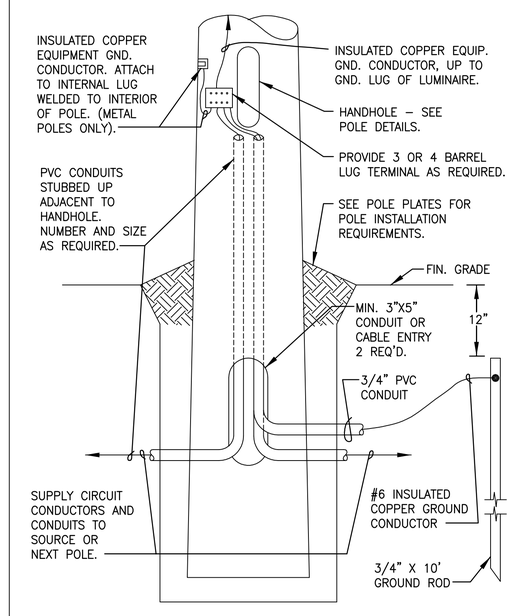


STEEL ANGLE SINGLE LUMINAIRE MOUNTING BRACKET – FOR WALL OR POLE – "D"

NOTES: 1. ALL MATERIALS SHOWN ON THIS SHEET SHALL BE HOT–DIP GALVANIZED.
2. PROVIDE BOLTS AND OTHER HARDWARE AS REQUIRED.

LUMINAIRE MOUNTING BRACKETS

SKETCH DATE	JUNE 2002	STYLE	XL–28



GROUNDING INSTALLATION DETAILS FOR DIRECT SET POLES

SKETCH DATE	JUNE 2002	STYLE	XL–34

APPR	DATE	DESCRIPTION	STN

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

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ACTIVITY – SATISFACTORY TO

DATE

APPROVED
FOR EFD FOR COMMANDER NAVFAC
4/11/03

DATE

A/E	EFD
DESIGN	DAM
DRAWN	LDS
REVIEW	PCH
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	
DESIGN DIRECTOR	

NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA
NORFOLK, VA
DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL STATION
NORFOLK NAVAL STATION
REPAIR PARKING LOT
WEST OF BUILDING U–132
LEGEND, DETAILS & LIGHTING SCHEDULE

CODE ID. NO. 80091	SIZE D
SCALE: NONE	
EFD NO.	
STA. PROJ. NO. R308	
SPEC. NO.	
CONSTR. CONTR. NO. N62470–03–C–3040	
NAVFAC DRAWING NO. 4503345	
SHEET 13 OF 17	

E–001

DRAWFORM REVISION SEPT 2001

FILENAME: 3A0460E–001.DWG, UPDATED ON 12/16/03 AT 08:06, XREFS: 033A0460PROJ–INFO

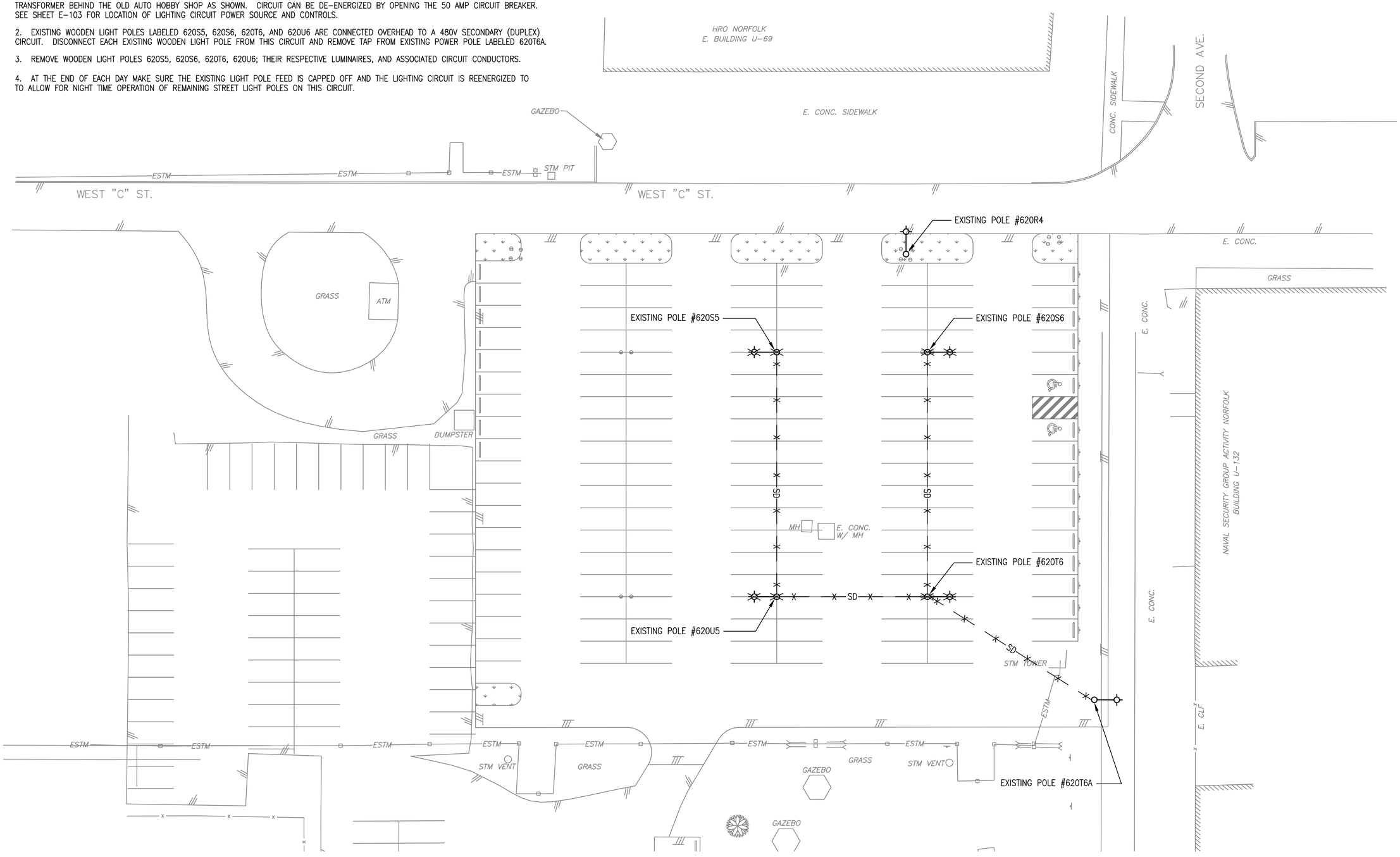
DEMOLITION NOTES

1. THE LIGHTING CIRCUIT IS POWERED FROM AN ENCLOSED 60 AMP, 480V LIGHTING CONTACTOR LOCATED OFF THE SECONDARY OF A 300 KVA TRANSFORMER BEHIND THE OLD AUTO HOBBY SHOP AS SHOWN. CIRCUIT CAN BE DE-ENERGIZED BY OPENING THE 50 AMP CIRCUIT BREAKER. SEE SHEET E-103 FOR LOCATION OF LIGHTING CIRCUIT POWER SOURCE AND CONTROLS.

2. EXISTING WOODEN LIGHT POLES LABELED 620S5, 620S6, 620T6, AND 620U6 ARE CONNECTED OVERHEAD TO A 480V SECONDARY (DUPLEX) CIRCUIT. DISCONNECT EACH EXISTING WOODEN LIGHT POLE FROM THIS CIRCUIT AND REMOVE TAP FROM EXISTING POWER POLE LABELED 620T6A.

3. REMOVE WOODEN LIGHT POLES 620S5, 620S6, 620T6, 620U6; THEIR RESPECTIVE LUMINAIRES, AND ASSOCIATED CIRCUIT CONDUCTORS.

4. AT THE END OF EACH DAY MAKE SURE THE EXISTING LIGHT POLE FEED IS CAPPED OFF AND THE LIGHTING CIRCUIT IS REENERGIZED TO TO ALLOW FOR NIGHT TIME OPERATION OF REMAINING STREET LIGHT POLES ON THIS CIRCUIT.



ELECTRICAL SITE PLAN

SCALE: 1"=20'-0"

GRAPHIC SCALE

1"=20' 0' 20' 40' 60' 80' 100'

DESCRIPTION	DATE	APPR

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

APPROVED

ACTIVITY – SATISFACTORY TO

DATE

APPROVED
FOR EFD FOR COMMANDER NAVFAC
11/17/03

DATE

A/E	EFD
DESIGN	DAM
DRAWN	DAM
REVIEW	PCH
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION
NORFOLK, VIRGINIA
NORFOLK NAVAL STATION
NORFOLK, VA

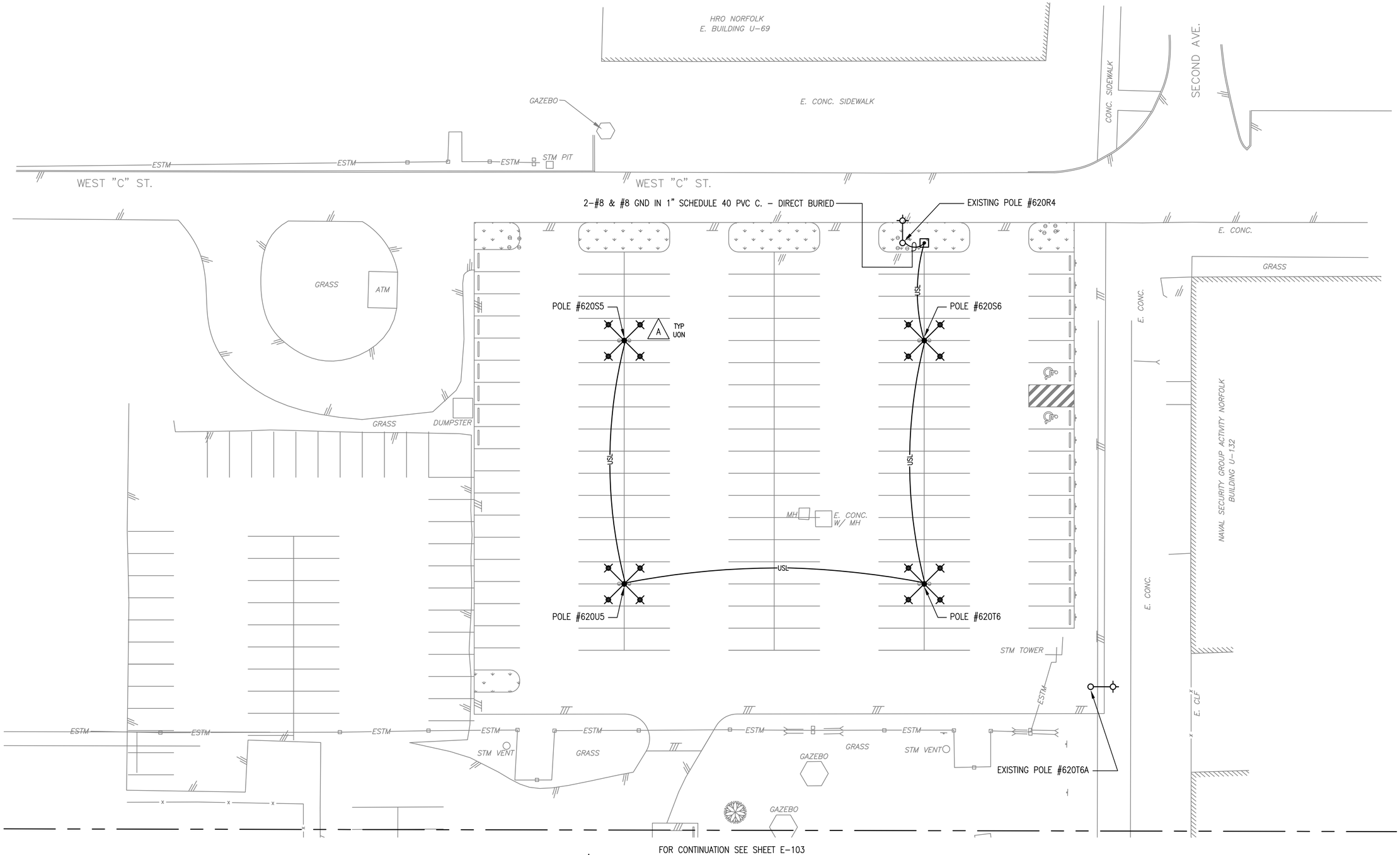
REPAIR PARKING LOT WEST OF BUILDING U-132

DEMOLITION PLAN

CODE ID. NO. 80091	SIZE D
SCALE: AS NOTED	
EFD NO.	
STA. PROJ. NO. R308	
SPEC. NO.	
CONSTR. CONTR. NO. N62470-03-C-3040	
NAVFAC DRAWING NO. 4503346	
SHEET 14 OF 17	

E-101

DRAWFORM REVISION SEPT 2001



ELECTRICAL SITE PLAN

SCALE: 1"=20'-0"

GRAPHIC SCALE

1"=20' 0' 20' 40' 60' 80' 100'

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

APPROVED

ACTIVITY - SATISFACTORY TO

DATE

APPROVED
FOR EFD FOR COMMANDER NAVFAC
11/19/03

DATE

	A/E	EFD
DESIGN		DAM
DRAWN		LDS
REVIEW		PCH
QC		
CHIEF ARCH./ ENGR.		
PROJECT MANAGER		
FIRE PROTECTION		
BRANCH MANAGER		
DESIGN DIRECTOR		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION NORFOLK
ATLANTIC DIVISION
NORFOLK NAVAL STATION
NORFOLK, VIRGINIA
NORFOLK, VA

REPAIR PARKING LOT WEST OF BUILDING U-132

ELECTRICAL LIGHTING PLAN

CODE ID. NO. 80091 | SIZE D

SCALE: AS NOTED

EFD NO.

STA. PROJ. NO. R308

SPEC. NO.

CONSTR. CONTR. NO.
N62470-03-C-3040

NAVFAC DRAWING NO.
4503347

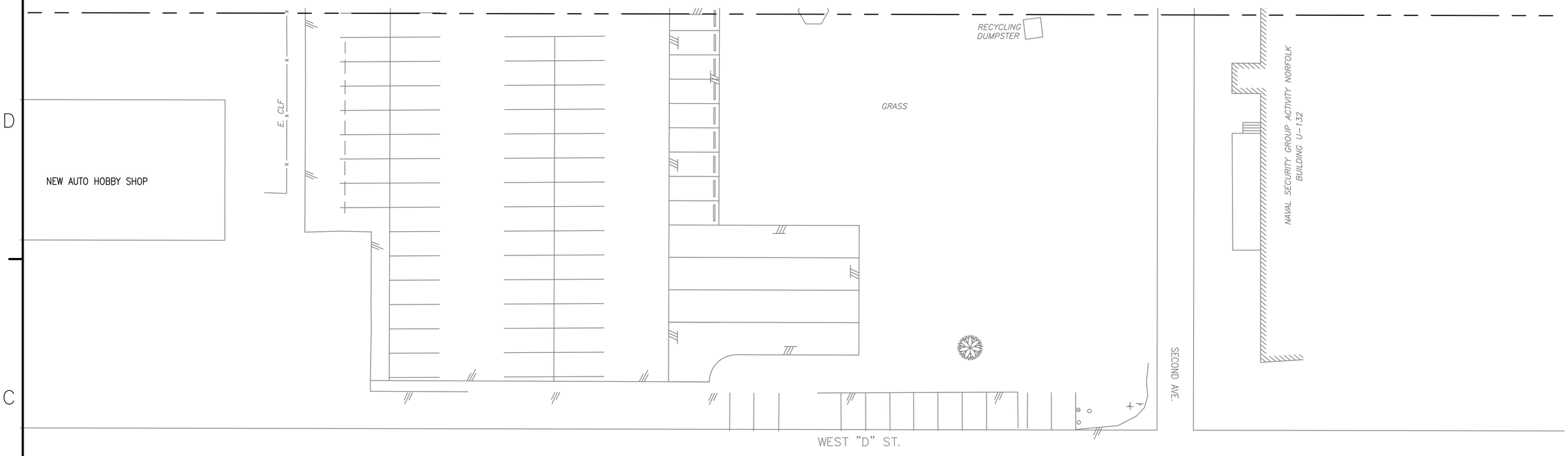
SHEET 15 OF 17

E-102

DRAWFORM REVISION SEPT 2001

FILENAME: 3A0460E-102.DWG, UPDATED ON 12/16/03 AT 09:19. XREFS: 033A0460BASE, 033A0460PROJ-INFO

FOR CONTINUATION SEE SHEET E-102



WORK NOTES

1. AFTER REMOVAL OF THE 4 EXISTING WOODEN LIGHT POLES, PROVIDE A NON-TRAFFIC RATED HANDHOLE NEAR EXISTING LIGHT POLE #620R4 AS SHOWN. CONNECT THE EXISTING 480V LIGHTING CIRCUIT FEED INTO THE HANDHOLE.

2. PROVIDE A 2" SCHEDULE 40 PVC CONDUIT CONCRETE ENCASED 24" BELOW PAVEMENT FROM HANDHOLE TO THE NEW LOCATIONS OF THE CONCRETE POLES AS SHOWN.

3. PROVIDE 2 #8 THWN CONDUCTORS AND #8 GROUND FROM HANDHOLE TO THE NEW LOCATIONS OF THE 4 CONCRETE POLES AS SHOWN. SPLICE TO THE EXISTING 480V LIGHTING CIRCUIT.

4. PROVIDE CONCRETE POLE, LUMINAIRE MOUNTING ARM, LUMINAIRE, AND GROUNDING AS DETAILED ON SHEET E-001. PROVIDE 2 #10 THWN CONDUCTORS AND #10 GROUND FROM BASE OF POLE UP TO THE LUMINAIRES.

5. LABEL CONCRETE LIGHT POLES WITH IDENTIFICATION NUMBERS 620S5, 620S6, 620T6, AND 620T6 AS SHOWN.

ELECTRICAL SITE PLAN
SCALE: 1"=20'-0"

GRAPHIC SCALE
1"=20' 0' 20' 40' 60' 80' 100'

NO.	DESCRIPTION	DATE	APPR

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

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ACTIVITY - SATISFACTORY TO
DATE
APPROVED
FOR EFD FOR COMMANDER NAVFAC
11/19/03
DATE

A/E	EFD
DESIGN	DAM
DRAWN	LDS
REVIEW	PCH
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION
NORFOLK NAVAL STATION
NORFOLK, VIRGINIA
NORFOLK, VA

REPAIR PARKING LOT WEST OF BUILDING U-132

ELECTRICAL LIGHTING PLAN

CODE ID. NO. 80091	SIZE D
SCALE: AS NOTED	
EFD NO.	
STA. PROJ. NO. R308	
SPEC. NO.	
CONSTR. CONTR. NO. N62470-03-C-3040	
NAVFAC DRAWING NO. 4503348	
SHEET 16 OF 17	

E-103

DRAWFORM REVISION SEPT 2001

GENERAL SPECIFICATION NOTES

(1) PROVIDE EQUIPMENT, MATERIALS, INSTALLATION, AND WORKMANSHIP IN ACCORDANCE WITH THE MANDATORY AND ADVISORY PROVISIONS OF NFPA 70.

(2) PROVIDE UNDERGROUND ELECTRICAL WORK CONFORMING TO THE FOLLOWING:

1.1 Submit the following for approval:

Shop Drawings

Product Data

Composite / fiberglass handholes

2.1. Plastic Conduit

NEMA TC 2 and UL 651, Type EPC-40-PVC.

2.1.1 PVC Conduit Fittings

NEMA TC 3, UL 514B, and UL 651.

2.2 Conductor Types and Color Coding

Conductors shall conform to UL 83, Type THWN. Conductors shall be color coded. Conductor identification shall be provided within each enclosure where a tap, splice, or termination is made. Conductor identification shall be by color-coded insulated conductors, plastic-coated self-sticking printed markers, colored nylon cable ties and plates, or heat shrink type sleeves. Conductors No. 10 AWG and smaller shall be solid copper. Conductors No. 8 AWG and larger shall be stranded copper. All conductors shall be copper. Colors for coding conductors shall be:

208 VOLT SYSTEM, THREE-PHASE	120/240 VOLT SYSTEM, SINGLE-PHASE
Neutral – White	Neutral – White
Phase A – Black	Phase Conductor – Black
Phase B – Red	Phase Conductor – Red
Phase C – Blue	Grounding Conductor – Green
Grounding Conductor – Green	

2.2.1 600 Volt Wire Connectors and Terminals

Shall provide a uniform compression over the entire contact surface in accordance with UL 486A. For connections above grade, connectors for No. 10 AWG and smaller diameter wires shall be insulated, pressure-type in accordance with UL 486A or UL 486C (twist-on splicing connector). Provide solderless terminal lugs on stranded conductors.

2.2.2 600 Volt Splices

Provide splices with a compression connector on the conductor and by insulating and waterproofing using one of the following methods which are suitable for continuous submersion in water and comply with NEMA C119.1.
Provide a cold-shrink rubber splice which consists of EPDM rubber tube which has been factory stretched onto a spiraled core which is removed during splice installation. The installation shall not require heat or flame, or any additional materials such as coverings or adhesive. It shall be designed for use with inline compression type connectors, for indoor, outdoor, or submerged locations.

2.3 BURIED WARNING AND IDENTIFICATION TAPE

Polyethylene plastic and metallic core or metallic-faced, acid- and alkali-resistant, polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, 3 inch minimum width, color coded yellow with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED ELECTRIC LINE BELOW" or similar wording. Color and printing shall be permanent, unaffected by moisture or soil. Minimum thickness of the tape shall be 0.004 inch. Tape shall have a minimum strength of 1500 psi lengthwise and 1250 psi crosswise. Tape shall be manufactured with integral wires, foil backing, or other means of enabling detection by a metal detector when tape is buried up to 3 feet deep. Encase metallic element of the tape in a protective jacket or provide with other means of corrosion protection.

2.4 Grounding and Bonding Equipment

UL 467. Provide copper clad steel ground rods with diameter not less than 3/4 inch. Ground rods shall be 10 feet long.

2.5 Cast-In-Place Concrete

Shall be composed of fine aggregate, coarse aggregate, portland cement, and water so proportioned and mixed as to produce a plastic, workable mixture. Fine aggregate shall be of hard, dense, durable, clean, and uncoated sand. The coarse aggregate shall be reasonably well graded from 3/16 inch to one inch. The fine and coarse aggregates shall be free from injurious amounts of dirt, vegetable matter, soft fragments or other deleterious substances. Water shall be fresh, clean, and free from salts, alkali, organic matter, and other impurities. Concrete for encasement of underground ducts shall be 3000 psi minimum 28-day compressive strength. Concrete associated with electrical work for other than encasement of underground ducts shall be 4000 psi minimum 28-day compressive strength unless specified otherwise. Slump shall not exceed 4 inches. Retempering of concrete will not be permitted. Exposed, unformed concrete surfaces shall be given a smooth, wood float finish. Concrete shall be cured for a period of not less than 7 days, and concrete made with high early strength portland cement shall be repaired by patching honeycombed or otherwise defective areas with cement mortar as directed by the Contracting Officer. Air entrain concrete exposed to weather using an air-entraining admixture conforming to ASTM C260. Air content shall be between 4 and 6 percent.

2.6 Composite / Fiberglass Handholes and Covers

Provide handholes and covers as indicated. Handholes and covers shall be of polymer concrete, reinforced with heavy weave fiberglass.

3.1 Cast-In-Place Concrete

Cast-in-place concrete work shall conform to the requirements of ACI 318M/318RM.

3.2 Underground Conduit

The type of conduit shall be EPC-40-PVC.

3.3 Conduit Installation

The top of the conduit shall be not less than 24 inches below grade, and shall have a minimum slope of 3 inches in each 100 feet away from buildings and toward handholes and other necessary drainage points. Run conduit in straight lines except where a change of direction is necessary. Terminate conduits in end-bells where they enter underground structures.

3.3.1 Encasement Under Roads and Structures

Under roads and paved areas, install conduits in concrete encasement of rectangular cross-section providing a minimum of 3 inch concrete cover around ducts. The concrete encasement shall extend at least 5 feet beyond the edges of paved areas and roads. Before pouring concrete, anchor conduit to prevent the conduit from floating during concrete pouring. Anchoring shall be done by driving reinforcing rods adjacent to conduit and attaching the rod to the conduit.

3.3.2 Installation of Warning and Identification Tape

Provide warning tape for underground conduit. Bury tape with the printed side up at a depth of 12 inches below the top surface of earth or the top surface of the subgrade under pavements.

3.4 Composite / Fiberglass Handhole Installation

Install as indicated and in accordance with the manufacturer's instructions.

3.5 600 Volt Cable Splicing and Terminating

Provide splices and terminations to protect 600 volt insulated power and lighting cables from accidental contact, deterioration of coverings and moisture. Make terminations and splices with materials and methods as indicated or specified herein and as designated by the written instructions of the manufacturer. Make splices in underground distribution systems only in accessible locations such as handholes.

3.6 Cable End Caps

Cable ends shall be sealed at all times with coated heat shrinkable or cold-shrink end caps.

3.7 Grounding Systems

Noncurrent-carrying metallic parts associated with electrical equipment shall have a maximum resistance to solid earth ground not exceeding 5 ohms.

3.7.1 Grounding Electrodes

Provide cone pointed ground rods driven full depth plus 6 inches.

3.7.2 Grounding Connections

Make grounding connections which are buried or otherwise normally inaccessible, by exothermic weld or compression connector.

3.7.3 Grounding Conductors

Unless otherwise indicated, grounding conductors shall be stranded-bare copper conforming to ASTM B8, Class B, for sizes No. 6 AWG and larger, and shall be solid-bare copper conforming to ASTM B1 for sizes No. 8 and smaller.

3.8 Performance of Field Acceptance Checks and Tests

3.8.1 600 Volt Cable Tests

Perform tests after wiring is completed, connected, and ready for operation, but prior to placing systems in service and before any branch circuit breakers are closed.

a. Inspect cables for physical damage and proper connection in accordance with contract plans and specifications.

b. Check cable color coding for compliance with contract specifications.

c. Perform continuity test to insure proper cable connection.

(3) PROVIDE POLES AND LIGHTING CONFORMING TO THE FOLLOWING:

1.1 Submit the following for approval:

Shop Drawings

Luminaire drawings
Pole drawings

Product Data

Luminaires
Concrete poles
Brackets

1.1.1 Luminaire Drawings

Include dimensions, effective projected area (EPA), accessories, and installation and construction details. Photometric data, including zonal lumen data, average and minimum ratio, aiming diagram, and computerized candlepower distribution data shall accompany shop drawings.

1.1.2 Pole Drawings

Include dimensions, wind load determined in accordance with AASHTO LTS-4, pole deflection, pole class, and other applicable information. For concrete poles, include: section and details to indicate quantities and position of prestressing steel, spiral steel, inserts, and through holes; initial prestressing steel tension; and concrete strengths at release and at 28 days.

2.1 LUMINAIRES

UL 1598. Provide luminaires as indicated, complete with lamps of type and wattage indicated.

2.1.1 High-Pressure Sodium (HPS) Lamps

NEMA C78.42. Wattage as indicated. HPS lamps shall have average rated life of 24,000 hours (minimum).

2.1.2 Ballasts for High-Intensity-Discharge (HID) Luminaires

UL 1029 and NEMA C82.4, and shall be constant wattage autotransformer (CWA) or regulator, high power-factor type. Provide single-lamp ballasts which shall have a minimum starting temperature of minus 30 degrees C.

2.2 POLES

Provide poles designed for wind loading of 100 miles per hour determined in accordance with AASHTO LTS-4 while supporting luminaires having effective projected areas indicated. Poles shall be embedded -base type designed for use with underground supply conductors. Poles shall have oval-shaped handhole having a minimum clear opening of 2.5 by 5 inches. Handhole cover shall be secured by stainless steel captive screws. Provide concrete poles conforming to ASTM C 1089. Cross-sectional shape shall be round. Install according to pole manufacturer's instructions at depth as indicated.

2.3 BRACKETS AND SUPPORTS

IEEE C136.3, IEEE C136.13, and IEEE C136.21, as applicable. Special mountings or brackets shall be as indicated and shall be of metal which will not promote galvanic reaction with luminaire head.

3.1 GROUNDING

Ground noncurrent-carrying parts of equipment including luminaires, mounting arms, brackets, and metallic enclosures. Where copper grounding conductor is connected to a metal other than copper, provide specially treated or lined connectors suitable for this purpose.

APPR	DATE	DESCRIPTION	STN

DESIGNED & ENGINEERED BY:
LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND

SEAL

APPROVED

ACTIVITY – SATISFACTORY TO

DATE

APPROVED
FOR EFD FOR COMMANDER NAVFAC
11/19/03

DATE

A/E	EFD
DESIGN	TGO
DRAWN	DAM
REVIEW	PCH
QC	
CHIEF ARCH./ ENGR.	
PROJECT MANAGER	
FIRE PROTECTION	
BRANCH MANAGER	
DESIGN DIRECTOR	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA

NAVAL STATION NORFOLK
ATLANTIC DIVISION
NAVAL STATION NORFOLK, VA

REPAIR PARKING LOT
WEST OF BUILDING U-132

SPECIFICATIONS

CODE ID. NO. 80091	SIZE	D
SCALE: NONE		
EFD NO.		
STA. PROJ. NO. R308		
SPEC. NO.		
CONSTR. CONTR. NO. N62470-03-C-3040		
NAVFAC DRAWING NO. 4503349		
SHEET 17 OF 17		

E-501

DRAWFORM REVISION SEPT 2001

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